National SAFETY NEWS

SEPTEMBER 1956

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44th NATIONAL SAFETY CONGRESS and EXPOSITION

OCTOBER 22-26, 1956

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National
SAFETY NEWS
Published monthly by National Safety Council

Vol. 74, No. 3 SEPTEMBER, 1956

THE COVER: Almost as impressive as the Prudential's famous trademark is its new midwest headquarters, the most recent addition to Chicago's skyline, just off Michigan Boulevard about halfway between the Council's offices and Congress headquarters at the Conrad Hilton. (Photo by Jim Lehman, NSC staff photographer.)

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TEAR OUT THIS PAGE *and post on your company bulletin board. We'll ship one pair or dozens in any styles and sizes wanted to fit the individual.*

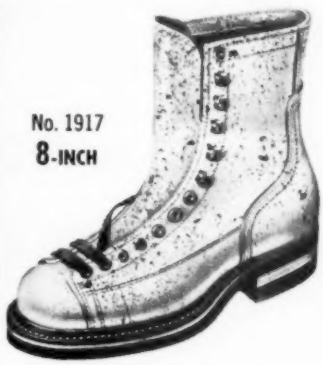
No. 1319
8-INCH

Russet water-repellent leather insulated against heat and cold; Neoprene Cord sole and heel.

No. 1918
8-INCH

Mahogany retan lace-to-toe Lineman's; Neoprene Cord outsole and heel.

No. 1917
8-INCH



Natural retan lace-to-toe; Neoprene Cord sole and heel.

No. 1915
8-INCH

Engineer's field boot; double soles; Neoprene outsole and heel.

No. 1916
8-INCH

Brown oiled leather; Neoprene Cord outsole and heel.

No. 1919
8-INCH

Mahogany calf lace-to-toe; extra heavy Vulcork—Neoprene outsole and Ranger Heel.

No. 1914
10-INCH

Mahogany engineer's field boot; full double soles; Neoprene outsole and heel.

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SAFETY SHOE PROTECTION
at low, direct-from-maker prices!

Order direct from

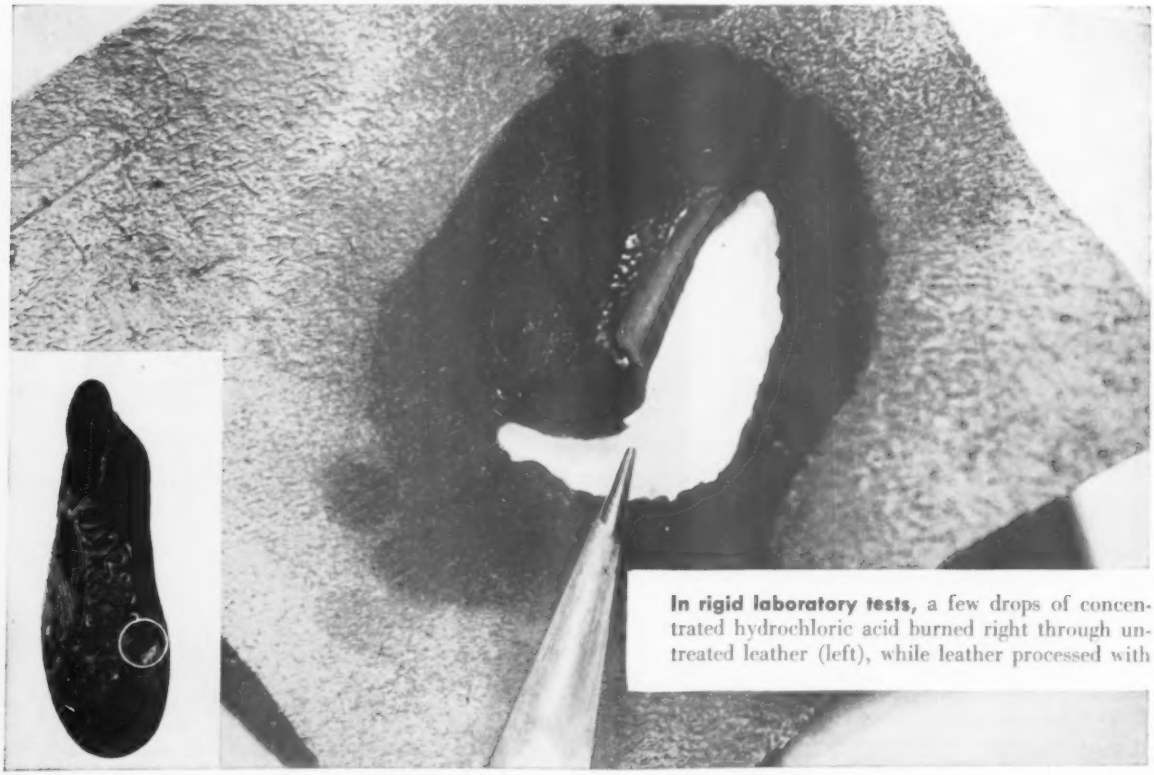
Lehigh
SAFETY SHOE COMPANY
Emmaus, Pa.

DUPONT

brings you safety against more

New versatile chemical used in processing leather helps safety shoes resist acids and alkalies . . . protects shoes against water, perspiration and scuffing damage.

†Already many safety shoe manufacturers are featuring safety shoes processed with Du Pont "Quilon." These are: Lehigh Safety Shoe Co., Record Industrial Co., Sentry Shoe Co. (a Division of General Shoe Corp.), Iron Age Division of H. Childs and Co., Inc., Thom McAn Safety Shoes.



In rigid laboratory tests, a few drops of concentrated hydrochloric acid burned right through untreated leather (left), while leather processed with

QUILON®

shoes that protect hazards. Here's why!

Now—safety shoes with unprecedented protection. For now Du Pont "Quilon" chrome complex—new advance for leather improvement—makes possible safety shoes that give *more* protection against *more* hazards.

Du Pont "Quilon" gives far more protection against powerful, concentrated acids and other chemicals, water, perspiration . . . even scuffing and scarring damage. Extensive laboratory and wear tests show leather processed with "Quilon" stands up better . . . *protects better* than ordinary tanned leather. Leather processed with "Quilon" remains pliable when exposed to repeated wetting and drying—yet the leather breathes.

And remember—the protection "Quilon" adds to safety shoes *lasts* because it's processed right *into* the leather.

Look for these new, safer, more practical safety shoes now†

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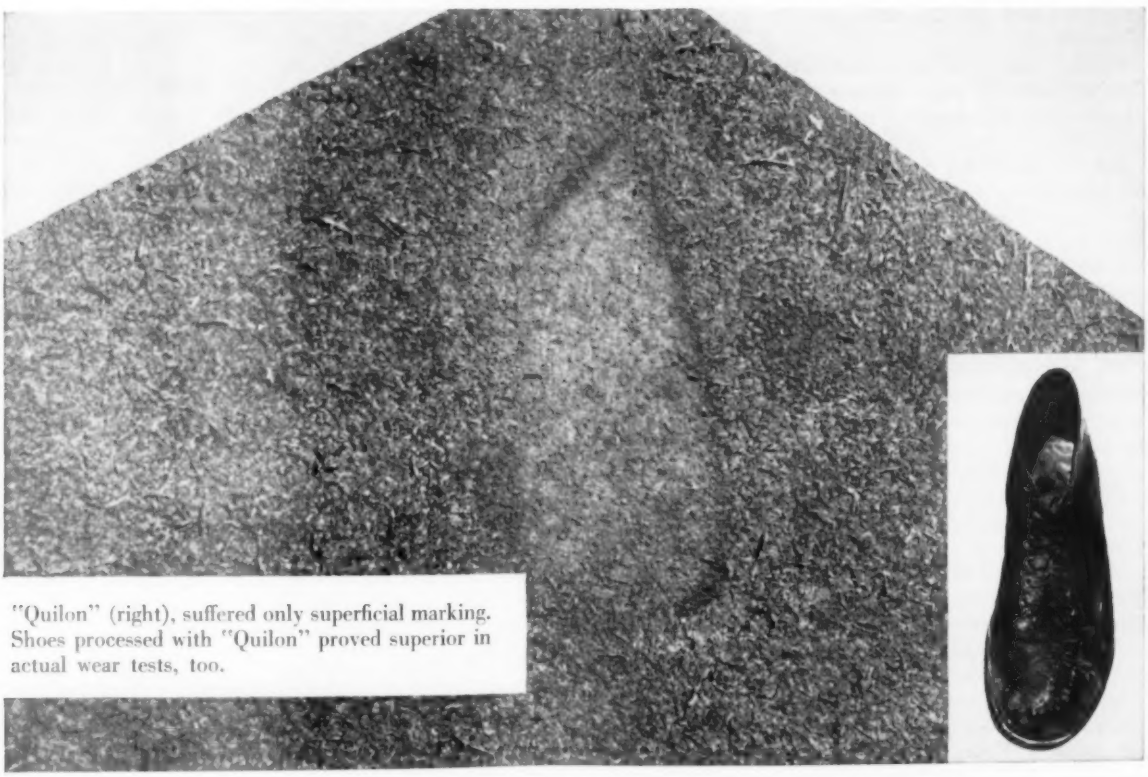


"Quilon" (right), suffered only superficial marking. Shoes processed with "Quilon" proved superior in actual wear tests, too.

THE SAFETY VALVE

Nothing human is alien to me

—TERENCE

Sidney J. Williams

THE TITLES which Sidney Williams held during his 38 years with the National Safety Council never completely described his place in the organization. As chief engineer, director of the public safety division, general manager, and assistant to the president, he brought to each job something not included in its specified duties.

Perhaps the most accurate measure of the man was expressed in the citation when he received the Arthur Williams Memorial Award: *The Strong Right Arm of Safety.*

Sidney Williams was an engineer in the broadest sense of the term. Along with a wide technical knowledge he had a keen appreciation of those aspects of life beyond the slide rule and mathematical formulae.

A native of Milwaukee, he got started in safety work about the time the National Safety Council opened its doors in 1913. After graduation he spent a few years in industry before joining the Wisconsin Industrial Commission, an organization that has trained so many men in safety principles and practice—both on its staff and in the industries it serves.

Toward the close of World War I he joined the Council's staff as chief engineer and helped to build up an expanded program to meet the needs of postwar industrial expansion in accident prevention.

As the mounting traffic toll began to force itself on the public consciousness, the Council realized the need of extending its efforts in this direction. With his proven experience in industrial safety and his understanding of the full scope of the accident problem, Sidney Williams was the logical person to direct the enlarged program. And it was in the field of traffic safety that he became widely known.

To Sidney, writing was primarily a vehicle, but he wrote in a clear, forceful style, envied by many of us who write for a living. He wrote well because he had a large store of knowledge to draw on and he could interpret facts as well as assemble them.

Throughout his career he was active as a writer and speaker and these activities brought a wider understanding of safety and increased prestige for the Council. He was selected to deliver the Beecroft Memorial Lectures by the Society of Automotive Engineers and received the high honors of the CIT Safety Foundation Award and the Arthur Williams Memorial Award.

In the two national emergencies he was called upon to aid the Federal Government in organizing for safety. When the distress of depression days brought large numbers of untrained men into made work programs and later when the nation's manpower was being mobilized for warpower his organizing and administrative abilities were invaluable.

Yet these activities, important as they were, do not represent his only services to safety. His judgment was respected and his advice sought on many problems of the Council's administration, and by many individuals on personal matters.

And I've remembered with gratitude his thoughtful help and coaching when I joined the Council staff more than 33 years ago. His door was always open and I never failed to receive help and encouragement.

What I've written here is something I never got around to telling Sidney during his lifetime.

In This Issue . . .

You may never have a chance to build a new plant or even do a complete job of remodeling the one you have but you can often get ideas for changing the set-up from articles on design and construction. Here's an extremely practical one by R. W. Mallick of Westinghouse who is co-author of a book on the subject. (Page 18)

* * *

Placing the man in a job he can fill safely is the purpose of medical examinations in industry. This article on the scope of techniques of examinations is presented through the cooperation of the American Medical Association. (Page 20)

* * *

Atomic energy is not likely to become a household servant in the foreseeable future. Protecting people against radiation is too complicated and expensive for all but large installations. This new force, however, is serving industry in many ways with a high degree of safety. (Page 22)

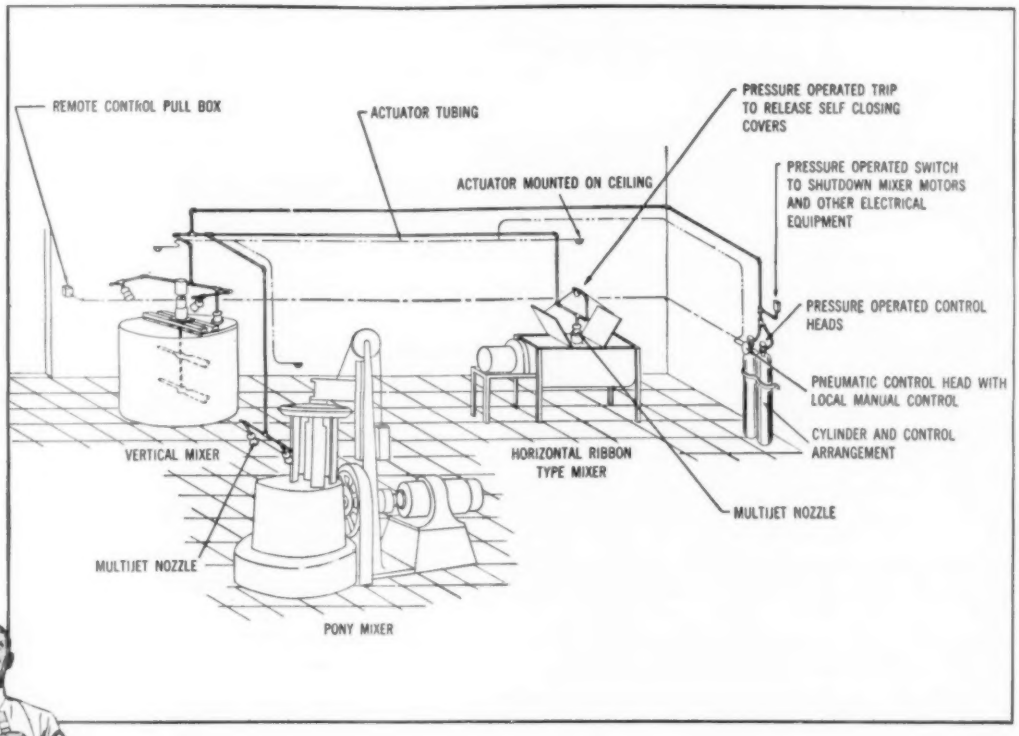
* * *

Industry has become as color conscious as the home. Both recognize the value of appearance but color has a definite purpose in industrial applications. Here are some standards for its functional use, based on research and experience on the job. (Page 30)

* * *

Comparing the relative frequency rates of the baking and explosive industries, it seems that more accidents occur with dough than with dynamite. (Severity, of course, is quite another matter.) Here is a striking picture of explosives manufacturing as seen by an outsider. (Page 32)

Carman Fish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Launch Drive on Falls

National Safety Council sponsors year-long campaign against persistent cause of injuries and deaths

A YEAR-LONG national campaign to prevent falls, sponsored by the National Safety Council, began September 1. Its goal is a 50 per cent reduction in injuries and deaths from falls in industry, in the home, on the farm, in the schools, and in public places.

This concerted and aggressive attack on falls is warranted by the fact that this type of accident is, and always has been, a major safety problem in the home, industry, schools, offices, stores, institutions, and elsewhere. Falls result in deaths at the rate of 55 per day, or a total of 19,800 in 1955.

The annual toll of employees temporarily and permanently disabled, and killed by falls in manufacturing, transportation, construction, trade, public service, mining, and other occupations is about 450,000. Almost one-fifth of all permanent disabilities and deaths to employees result from this one type of accident. The number of deaths resulting from falls is only exceeded by the total for vehicle mishaps.

Each industry and occupation, even the safest, contributes to this large total. Injuries due to falls by office workers, for example, outnumber other types of accidents in this occupation two to one. Particularly serious injuries, on the other hand, are numerous in construction work due to falls from scaffolds and stagings, ladders, and high places. In mines, falls down openings such as raises are relatively frequent and usually result in death.

Most of the major sources of falls are found in all types of manufacturing, trade and service organizations. For example, falls into openings in floors, pits, excavations and similar places are, percentage-wise, as numerous in manufacturing as in mining or in retail trades.

NATIONAL SAFETY COUNCIL

AWARD

TO

John Doe Company

IN RECOGNITION OF ITS OUTSTANDING ACHIEVEMENT

IN PREVENTING INJURIES FROM FALLS

NATIONAL CAMPAIGN FOR THE PREVENTION OF FALLS

SEPTEMBER 1, 1956—AUGUST 31, 1957

Ned H. Dearborn

The campaign, under the sponsorship of the Industrial Conference of the Council, is open to any industrial, commercial, public service, mining, or other employer organization, whether a member of the National Safety Council or not, or whether located outside the boundaries of the United States.

Enrollment may be on the official registration form furnished on request from the Council, or by letter. In any case, each store, plant, mine, or other type of establishment operated at different locations and employing 25 or more workers should be registered separately.

The Goal: 50% Reduction

To assist participants in carrying on an effective campaign and to achieve the campaign goal of a 50 per cent reduction in injuries and deaths, the Council will make available a special series of posters including an announcement poster and three large campaign banners for publicizing participation in the campaign. Films, safetygraphs, illustrated booklets, five-minute safety talks, and safety instruction cards, all on falls, may be obtained. These materials may be selected and ordered to a participant's ideas and needs.

On enrollment, each participant will be sent a suggested campaign plan for scheduling and using the materials effectively and incorporating them into their safety program. The campaign is intended to supplement a regular safety program of a large or small organization by additional emphasis on the prevention of falls.

A periodic report, such as monthly or bi-monthly, on progress in preventing injuries from falls to employees and to supervisors is a particularly effective means in maintaining interest in the campaign. Each participant should know what has been accomplished in order to judge the effectiveness of the campaign. Also, the National Safety Council will require the data for making awards to participants achieving or exceeding the campaign goal.

To be eligible for these awards, a participant must furnish injury

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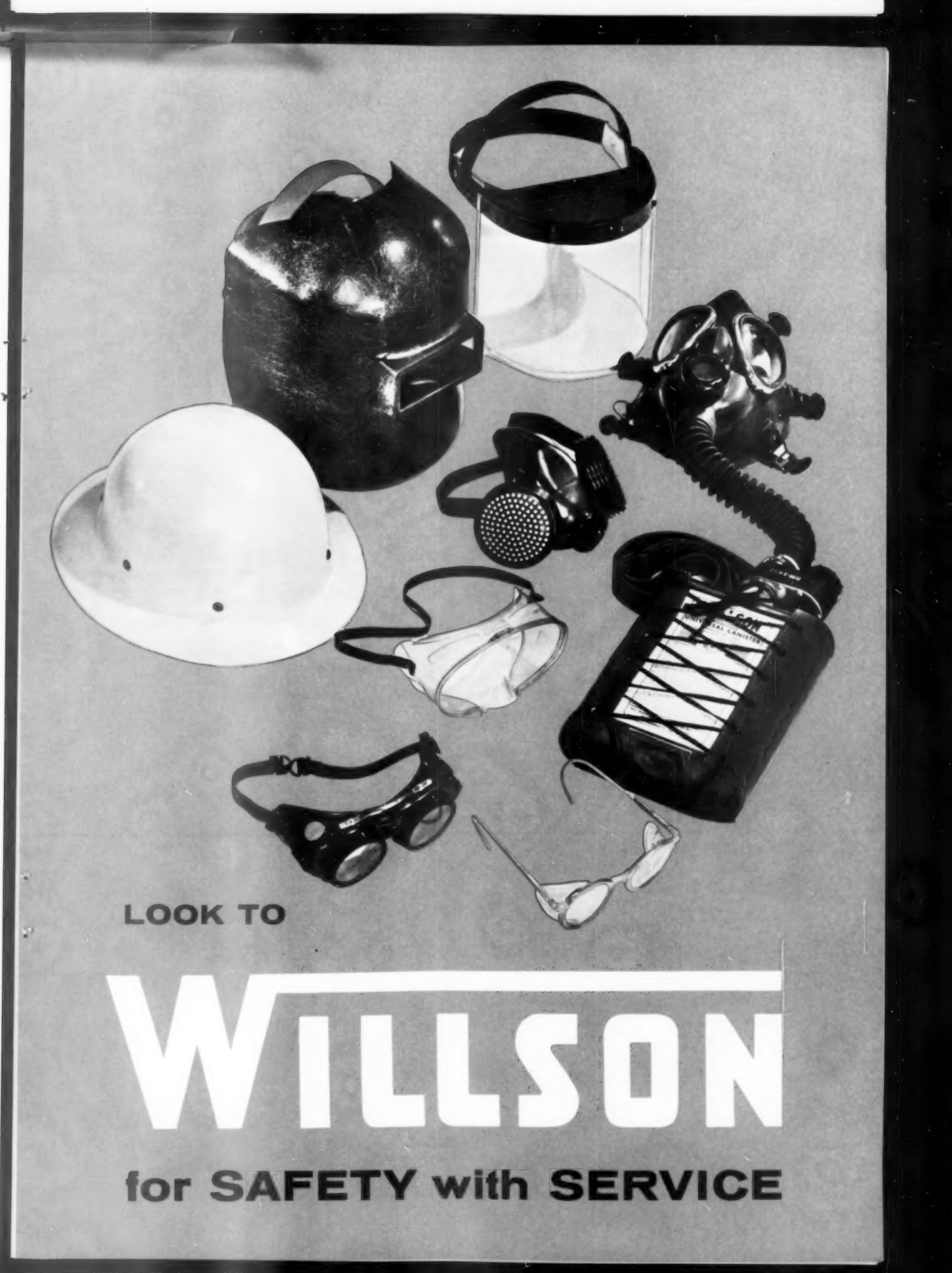
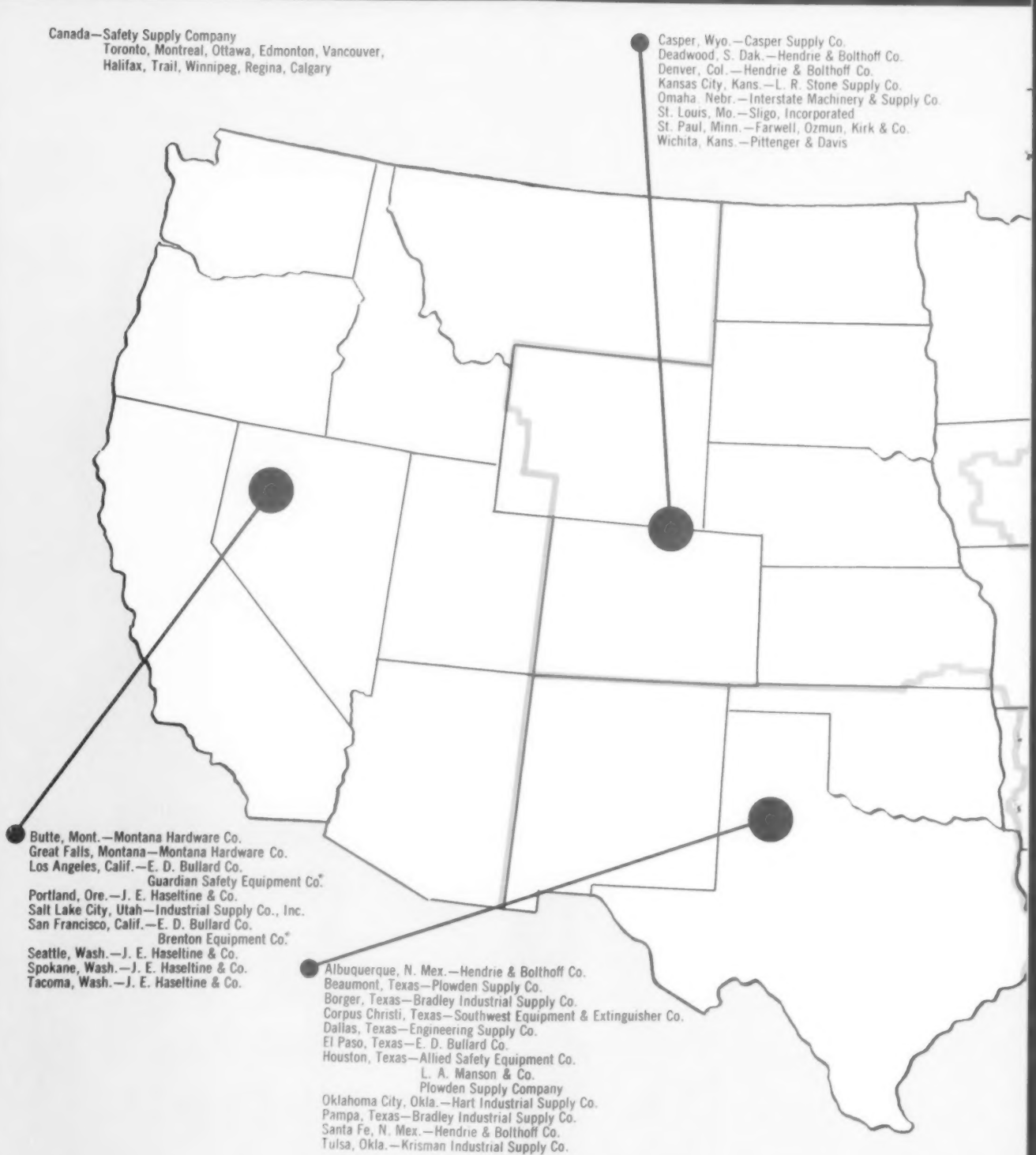

LOOK TO
WILLSON
for SAFETY with SERVICE

WILLSON



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Brenton Equipment Co.*
Seattle, Wash.—J. E. Haseltine & Co.
Spokane, Wash.—J. E. Haseltine & Co.
Tacoma, Wash.—J. E. Haseltine & Co.

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Borger, Texas—Bradley Industrial Supply Co.
Corpus Christi, Texas—Southwest Equipment & Extinguisher Co.
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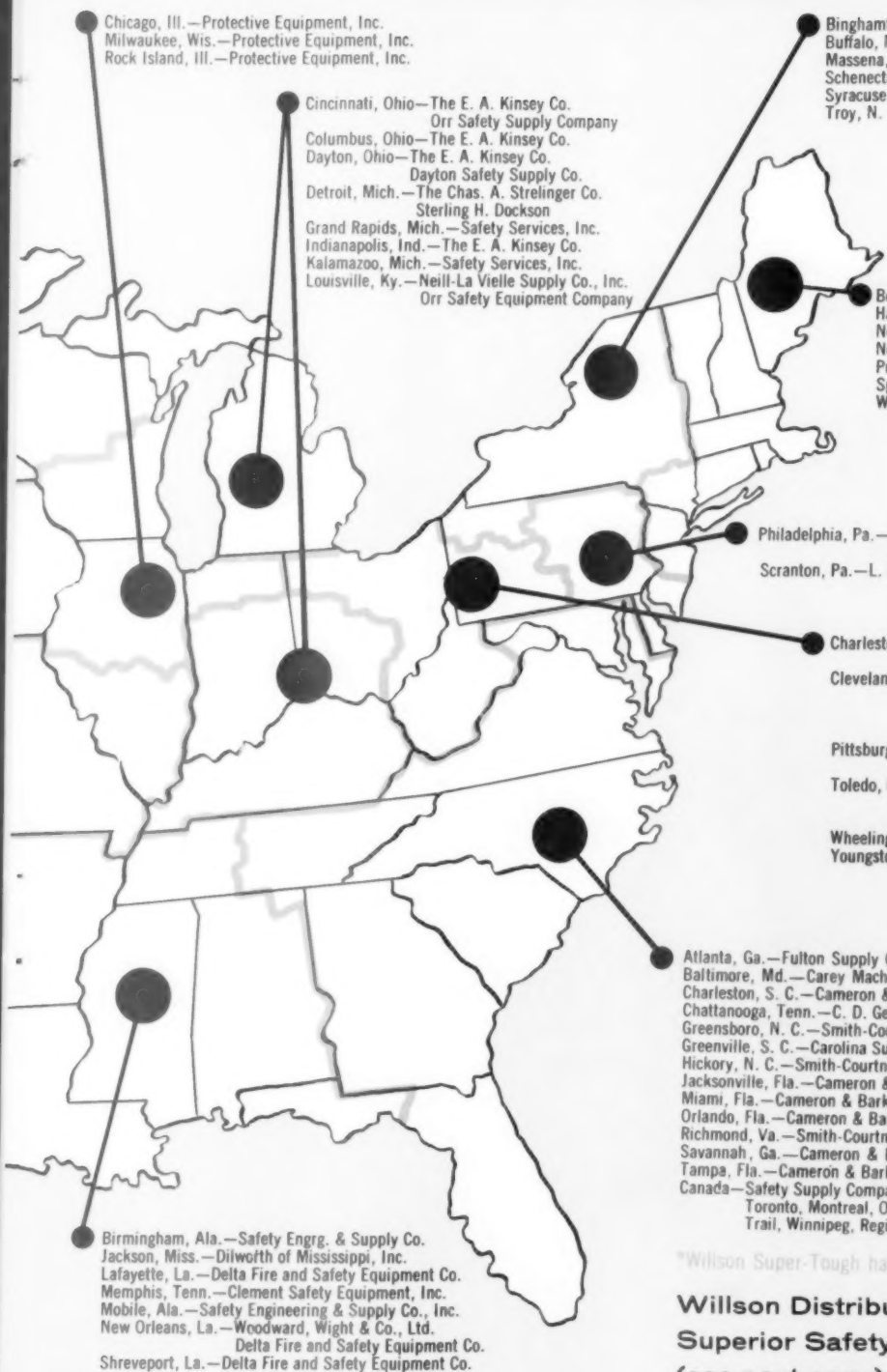

Chicago, Ill.—Protective Equipment, Inc.
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Cincinnati, Ohio—The E. A. Kinsey Co.
Orr Safety Supply Company
Columbus, Ohio—The E. A. Kinsey Co.
Dayton, Ohio—The E. A. Kinsey Co.
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Birmingham, Ala.—Safety Engrg. & Supply Co.
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Lafayette, La.—Delta Fire and Safety Equipment Co.
Memphis, Tenn.—Clement Safety Equipment, Inc.
Mobile, Ala.—Safety Engineering & Supply Co., Inc.
New Orleans, La.—Woodward, Wight & Co., Ltd.
Delta Fire and Safety Equipment Co.
Shreveport, La.—Delta Fire and Safety Equipment Co.

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(see next page)

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PRODUCTS DIVISION

Ray-O-Vac Company, Reading, Pennsylvania

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What Labor Expects of a State Labor Department

By P. L. SIEMILLER

WITH such a subject, it would only be natural that pride would cause me to want to hold *up* my home state as a good example for other states. Unfortunately, it is not possible; Illinois Labor Department and Safety Laws leave much to be desired.

The states, with few exceptions, are *not* doing the job they should be doing in occupational safety; and the reason is they don't see "what's in it" for them, they don't see where there's any revenue in promoting job safety, they don't see any benefits or value, they don't realize what good they *can* do.

President Eisenhower in his statement proclaiming Job Safety Week wrote "an occupational accident . . . has three certain results—human suffering to the victim and his family, economic loss to his employer, and waste of precious skills to his country."

Let the record show that here is one time I am in full agreement with our President's point of view. As citizens we are concerned with all three of the results of on-the-job accident. The employer is primarily concerned with the economics of the accident, with its cost to him in dollars and cents. Naturally so, because he runs his business to make money. We of labor are primarily concerned with the humanitarian point of view, with the suffering caused the individual and his family. The welfare of human beings is our business.

So what's in it for the governments of states?

Well, they have constitutional, moral and legal responsibilities to protect the health, welfare and safety of the people. It's their duty, only a lot of them don't seem to know it.

The basic reason, perhaps, why all the states should be concerned and active in occupational safety is that safety is everybody's job, everybody's responsibility. The exceedingly complicated and highly inter-dependent industrial society in which we live ties us all together like the mountain climber's rope.

A few states have no safety division or agency at all, I understand. A directory of labor offices in the United States and territories issued by the U. S. Department of Labor lists no safety divisions for Vermont, New Hampshire, Wyoming and South Dakota, according to a hasty check I made. In Texas, where there is no labor department as such, there is one safety man in the Bureau of Labor Statistics.

The size and scope and activities and value of safety agencies in our states varies greatly—just like other activities of the states vary. From my checking in the matter, I gather that California is carrying on one of the best, if not the best, state safety programs. Good safety divisions are operating also in Washington, Ohio, New York, Oregon and Florida. Between good agencies and good programs in a few states and an apparent total absence of agencies and programs in a few states there seems to be a wide arid area of many states whose safety work is indifferent and mediocre.

P. L. SIEMILLER is General Vice-President, International Association of Machinists. This article is adapted from a talk presented at the President's Conference on Occupational Safety, Washington, D. C., May 15, 1956.

What Is a Good Program?

What are the basic essentials of a good state safety program? Well, if you get awareness of the need and duty of the state to act in this field, you will get a law. For a good safety program, you need a good law. I like the way A. C. Blackman put it in an address to the National Safety Congress in 1954. He is chief of the California State Division of Industrial Safety. He said,

"In California, the constitutional amendment which authorized the establishment of the workmen's compensation system, also made provision for securing safety in places of employment. It was expressed as the will of the people that the system of workmen's compensation should include a method by which workers should be protected from unnecessary hazards at work.

"The legislature following out this mandate of the people then set forth a system of workmen's compensation which included an organization whose objective and whose function are to prevent, as far as possible, occupational injuries and deaths."

The law should be specific in its definitions and precise in stating its scope. Like the one in Califor-

—*To page 162*

THE DIARY OF A
SAFETY ENGINEER

(Fiction)

On his tour of company operations, our safety engineer finds another sick plant. Symptoms indicate apathy in the front office and frustration in the safety department

The Wall of Silence

By BILL ANDREWS

September 1, 1956

IT HAS BEEN a strange summer, largely spent in prowling industrial plants that were strange to me, looking for weaknesses in safety programs about which I knew little.

It has been a depressing summer, in the main, for Eastern Enterprises has routed me from one mess to another. And, too often for my peace of mind, I've had to diagnose the trouble as failure on the part of safety men themselves.

The Liedell plant in Maxton was my last stop before this Labor Day weekend. The greeting I got from the general superintendent was chilly, and the office to which I was sent to await the arrival of the safety engineer was dingy and ill-equipped.

The safety man, Dennis Ryan, proved to be an unimpressive person when he did show up. There was grease on his sport shirt and around his blue eyes there were tight, anxious wrinkles that belied his 30 years and his red hair.

"Sorry to keep you waiting," he said. "I had some work to do in the machine shop. What do you want to know?"

I asked for the usual—the basic statistical data, copies of reports, any educational material he'd been using. He got them out of the files—plain mimeographed documents, unrelieved by pictures or charts.

While I was studying the material to get the general situation in mind, the phone rang, and Ryan answered. The essence of his side of the conversation was, "... I still say the guard's inadequate... Look, I've run that machine! It's perfectly possible to lose a hand even with the guard in place... I know it'll slow production and cost money. So do accidents... All right, damn it. Go to the front office then... No, I won't withdraw my proposal... No!" And the phone was slammed down. I didn't say anything, but kept on reading.

Half an hour later the phone rang again. Ryan answered the phone, listened a moment and said, "Yes, sir, that's right. I consider the machine as it's now guarded a hazard... I understand your point, Mr. Haste... No, I don't think that justifies keeping the present set up... May I make a suggestion, sir? Will you come out to the shop with me before you decide?... Yes, sir, I appreciate how busy you are... Well, then, as an alternative, will you consider accepting my considered judgment— . . . All right, then. You're the boss. If you're giving me an order, I'll accept it. But I'd like a memo in writing, please... Why? Look, sir, I'm convinced the decision is wrong. I want the record to show where the responsibility for that decision lies... No, I'm not trying to be an obstructionist. I'm trying to do what you hired me to do as well as I know how. I'll take an order and carry it through, but I won't do it on my own responsibility or indicate approval of it... Yes, sir. I'll drop it... Right."

He looked across at me, and I just kept on reading.

It was a pretty dreary picture I was getting. A high accident rate long on the wrong kinds of accidents—the kind that spell out bad housekeeping, bad material handling, bad guarding. There was no marked trend either up or down.

A tour with Dennis Ryan of the plant merely substantiated what I had suspected. Ryan himself seemed very gloomy and a little defeatist.

There were two places in the plant where he seemed to brighten up. The power press room and the boiler room were a contrast to the rest of the dingy plant. There was evidence of real housekeeping effort, and even the intelligent use of color painting. But more importantly, in each of these places, Dennis was greeted cordially by the foremen and by the men.

Everywhere else the plant was dingy, and the personnel seemed sullen.

Back in his office, I rechecked

—To page 127

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National
SAFETY NEWS
SEPTEMBER 1956

They Fill a Need

CONVENTIONS, like luncheon clubs and other phases of modern business life, are often held up to satire. If we can believe the critics, all delegates are just out for a good time on the expense account; that speeches are full of words and short of ideas, and that such gatherings are a sheer waste of time and money. But conventions continue to fill the hotels of our leading cities.

Generalizations are never 100 per cent accurate, even though you may find a grain of truth in them.

Most convention delegates are serious minded men and women. They are looking for ideas and methods that will help them on their jobs.

And why apologize for the recreational features? Attending meetings make greater demands on nervous energy than the familiar duties of the regular job. So at a convention recreation provides a necessary counterbalance.

A convention program makes available much useful information. Each National Safety Congress sets several hundred people to work summarizing the results of experience. Frequently considerable research is involved. Nobody who does a conscientious job of preparing a paper fails to learn something.

Frequently the speaker calls on members of his own organization for help and the company profits from this interchange of ideas.

Formal papers and addresses, important as they are, do not constitute the only benefits to be obtained from attendance. Also valuable are impromptu discussions with their sharing of helpful experiences.

And don't overlook the benefits of getting acquainted with others in the same line of work. The Council, through its sectional organization, enables those with similar interests to get to know each other. At the same time they get an inspiring picture of the safety movement as a whole, in action.

It was at a convention in 1912 that the idea of a great national safety movement was born. Each subsequent National Safety Congress, supplemented by regional conferences in all parts of the country, has extended and consolidated the forces of safety. Many a company credits the start of a real safety program to the inspiration its representatives received at a National Safety Congress.

By the time this issue of the NEWS reaches you, you will have received your copy of the preliminary edition of the Congress Program. You will be impressed by the scope of subjects covered by its sessions. Perhaps you have also made a list of the meetings you would like to attend, regretting the impossibility of being in two places at the same time. And, it is to be hoped, you have made your hotel reservations.

See us in Chicago, October 22-26.

A PROPERLY DESIGNED plant entrance can be "safe" as well as eye appealing. At this plant employees and visitors can enter or leave, free of concern over traffic jams.

By R. W. MALLICK

Want Built-in Safety?

Building a new plant or remodeling an old one offers plenty of opportunities. Here are a few points to consider

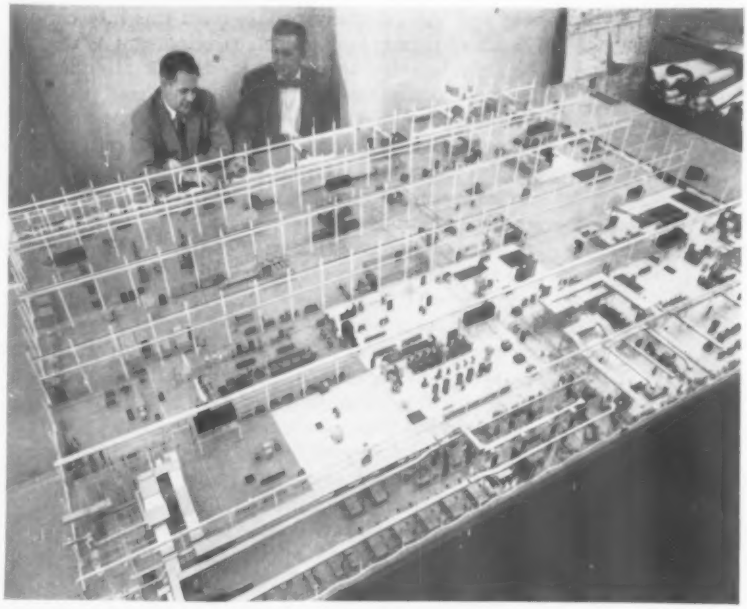
THERE is no better foundation for industrial accident prevention than pre-planning it into the plant layout. If your plant is properly planned and laid out, you will have a minimum number of accidents.

At one time spending money for safety measures was considered a luxury. However, that thinking has changed. It is no longer necessary for planning engineers to temper their layouts to avoid the luxury of safety measures. Accidents cost too much to allow safety to be treated lightly in plant layout design.

Your layout will largely determine whether or not you are building potential "booby traps" into your plant. In planning your plant, the following elements must be considered:

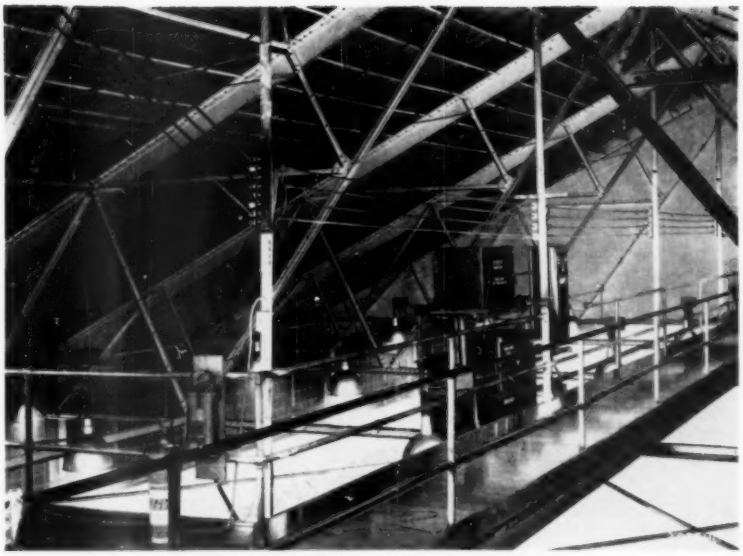
1. The plant site.
2. Entrance and exits.
3. Aisles, stairs, elevators, floors, ramps, and obstructions.
4. Equipment arrangement and guarding.
5. Painting and lighting.
6. Fire and explosion prevention.
7. First aid facilities.
8. Flow of material and housekeeping.
9. Material handling and storage.

The Plant Site. Your employees must travel to and from work and your plant location may subject them to travel hazards. Due to the usually heavy influx of traffic at shift change hours, the tendency to rush out of the plant or beat the whistle getting in, are factors affecting safety. If your plant is on a busy highway or city street, proper plant approaches should be provided.



USE OF 3-D MODELS in planning makes it easy to spot unsafe arrangements. Even experienced engineers find it difficult to visualize all conditions when it is necessary to rely solely on drawings and templates.

R. W. MALLICK is a registered professional engineer, a member of the American Society of Mechanical Engineers, co-author of the book, *Plant Layout*, and staff engineer, Westinghouse Electric Corp., East Pittsburgh, Pa. This article is adapted from an address presented at the ASME meeting, June 1956, Cleveland, Ohio.



THE MAINTENANCE personnel in this plant work high overhead under excellent conditions. Note protected catwalks, handy fire extinguishers, good lighting and clean wiring. Equipment which must be serviced is readily accessible.

NOTE THE special floor in this assembly area, also special lighting. When working conditions can be made as good as this, accident potentials are greatly reduced.

Perhaps your plant may be situated on a terrace requiring the use of stairs or ramps. These may be hazardous during inclement weather. One-way traffic lanes should be considered in the layout of the grounds. Shelters for employees using public conveyances are another consideration. Adequate parking facilities also should be installed.

Entrance and Exits. In some of the older plants very little thought was given to adequate receiving and shipping facilities or segregating them from intra-plant traffic. Industrial architects have in recent years succeeded in creating structural designs that have proved to be very eye appealing yet functional in terms of traffic efficiency and safety.

The mass production potentials of most modern plants require that materials and personnel be able to move in and out of the plant quickly, safely and economically. Some safety features to think about when planning a new layout or when changing the old one are:

1. Wherever possible keep rail, highway truck, industrial truck and pedestrian traffic separated. Where this cannot be done, plan the movement in such a manner as to avoid possibilities of collision.

2. Avoid sharp turns, grades, blind spots, intersections, cross-overs, congested points and similar "built in" hazard potentials.

3. It is better and safer to eliminate by good planning and design any potentially unsafe work conditions than to alleviate the hazard later on by some "protective means." To this end, the three-dimensional model is a worthwhile aid.

4. Where the volume of traffic is heavy, receiving and shipping departments should be designed with depressed docks or elevating platforms to permit loading and unloading of carriers by mechanical means at floor level. Proper clearances between the sides of the vehicles and obstructions should be observed. Statutary codes in some instances are too liberal for good practice.

Aisles, particularly the main traffic aisles, should be of generous width, as straight as possible and completely free of obstructions. Where possible, corners should be cut off on a diagonal and visibility should not be obscured. If vehicles must pass, the aisle should be at least twice the width of the widest part of the vehicle or load, plus another three feet if the aisle is also used by pedestrians.

If traffic is not heavy, the aisle can be of a width equal to the maximum width of the vehicle or

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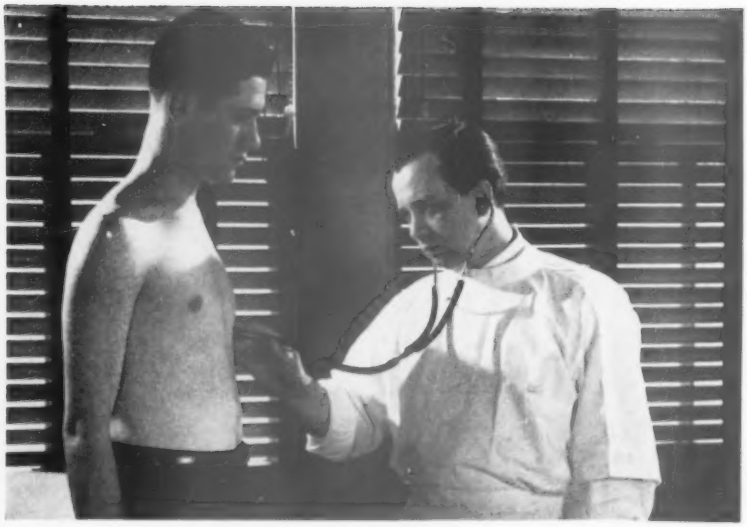

THESE PRINCIPLES have been approved for publication by the Council on Industrial Health of the American Medical Association. The material is a revision of the Council's previous publication, Medical Service in Industry—Industrial Health Examinations.

The committee that prepared this report consists of: Clarence D. Selby, M.D. (Chairman), Port Huron, Mich.; Leonard S. Arling, M.D., Minneapolis; James P. Baker, M.D.; White Sulphur Springs, W. Va.; E. S. Jones, M.D., Hammond, Ind.; Frank Princi, M.D., Cincinnati; Norbert J. Roberts, M.D., New York; Gradie R. Rowntree, M.D., Louisville.

CLARK D. BRIDGES, Acting Secretary
Council on Industrial Health, AMA

Guiding Principles of Medical Examinations in Industry

THE purpose of a health service in industry is to provide a program of positive health maintenance for the employees. An important element of such a program is the supervision of the health status of the individual through examination, counseling, and assistance in proper job placement. Medical examinations of employees are designed to permit assignment of work compatible with the physical and mental fitness of individuals, and to help them maintain their health.

Proper placement of workers, with due regard for the variations in physical demands required by different jobs and for the safety and health limitations involved in disabilities, can result in improved job performance, less absenteeism, decreased likelihood of injury, less hazard to the health and safety of others, lessened chance of aggravation of disorders and, doubtless, a longer productive life span. Examination for and assistance in job placement are, therefore, practical, individualized applications of the principles of preventive medicine.

The objectives of industrial medical examinations are:

1. To measure the medical fitness of individuals to perform their duties without hazard to themselves or others.
2. To assist individuals in the maintenance or improvement of their health.
3. To detect the effects of harmful working conditions and advise corrective measures.
4. To establish a record of the condition of the individual at the time of each examination.

Medical examination programs, properly conducted, provide maximum benefits to employees, employers and the community. The emphasis should be on the placement of individuals according to their abilities and not simply selection of the physically perfect and rejection of all others. Unjust or questionable exclusion from work, through improper application of the findings upon examination, is against the public welfare and contrary to sound industrial health principles.

Functions of Physicians and Assisting Personnel

Maintenance of the physician-patient relationship with fairness to both employee and employer is essential to the success of any industrial health program. Both should feel that their interests are represented with integrity. The examination should be conducted by the physician himself. It may be facilitated if a nurse or other adequately trained person can develop basic data from the examinee, such as height, weight and age. Custom requires that a nurse or other female attendant be present when women are being examined.

It is the duty of the physician to interpret medical findings and to make decisions regarding their work significance. Health counseling requires special training and should be performed by the physician or under his supervision. It is fundamental that the physician must have first-hand knowledge from personal observation of the various jobs within his industry. Information showing physical demands, working conditions, and accident and health hazards of each job classification facilitates selective placement.

Scope of Examination

It is essential that each examination be thorough and suitable for its purpose. What may be adequate in one case may be quite

insufficient in another. Many factors influence such decisions. For example, the physical demands on an ironworker engaged in construction of a skyscraper are quite different from those of the sedentary typist. It might be economically unsound for an essentially non-hazardous industry to include, routinely, extensive laboratory and x-ray tests of all applicants. On the other hand, a brief and superficial examination can be false economy and be misleading to employer and employee alike.

The nature of the industry, its inherent hazards, the variation in jobs, physical demands and health exposures, are determinants. The values of different examination procedures and their cost in time and dollars must be assayed. The physician, after carefully studying the problems involved, should advise management concerning the scope of the examination to be made.

The best type of examination program is one that emphasizes flexibility according to need, rather than one that has a set and invariable routine. A flexible plan provides for a basic minimum examination but recognizes the differences between individuals, age groups, and jobs. This permits the examining physician to devote less time and procedure to the evidently healthy young individual in a non-hazardous job. The older worker engaged in a more hazardous job receives more searching attention, with clinical impressions gained from the history and examination being supplemented by appropriate laboratory tests. Frequency of examination should vary with age, sex, occupation and individual findings.

Opinions vary considerably as to what constitutes a minimum examination. The following minimum has been suggested: history, age, height and weight, and general appearance; skin, eyes, ears, nose, teeth and mouth, chest (lungs and heart), lymph nodes, peripheral blood vessels, abdomen including hernia, anus, genitalia, and spine and extremities; blood pressure, pulse, temperature; urinalysis; visual and hearing acuity. Personality, temperament, significant nervous or mental manifestations should be noted.

In those cases in which an assistant takes the history, the physician should review it and elaborate the history still further. Most physicians feel that a carefully taken personal health and occupation history is of great value, as it may suggest additional examination or warrant extra attention. The trend in examinations is to make them more thorough, including chest x-ray, laboratory studies, electrocardiograms, special attention to the common sites of cancer, as well as mental or emotional states.

The employee should be examined in privacy and should be disrobed. The extent of the examination of female genitalia is a moot point, depending upon whether the examination is for employment purposes only or is part of a regular health maintenance plan, upon the age of the workers, and upon other factors. The higher incidence of abnormal findings has brought about the more general inclusion of laboratory tests in examination of persons over 45 years of age.

Because of the importance of vision with respect to job efficiency and safety, it is advisable to perform rather detailed vision examinations measuring visual acuity for near and distance, visual fields, color discrimination, and depth perception. Instruments for making these tests are in general use. Detailed tests and records of the worker's hearing acuity before employment and periodically thereafter are often of value, particularly where there is an exposure to excessive noise. Laboratory tests are indispensable where there is an exposure to toxic substances. Chest x-rays before employment and periodically thereafter may be indicated for workers engaged in dusty trades, particularly the mineral dusts.

Types of Examinations

The various kinds of examinations may be classified as original, periodic, and special.

Original Examinations. Original examinations (also often called preemployment or preplacement examinations) are made for the express purpose of determining and recording the physical condition of the prospective worker and assignment to a suitable job in which his disabilities, if any, will not affect his personal efficiency, safety and health, nor the safety of others. The applicant (or his personal physician, on the applicant's approval) is advised of conditions needing attention.

Periodic Examinations. Periodic examinations of employees may be on a voluntary or required basis. If voluntary, it is usually customary to make the examination on or near the birthday of each individual. This usually results in a reasonable spread of examinations over the calendar year and eliminates peak loads. If the operations involved are relatively non-hazardous, intervals between examinations can be as much as two or three years at the discretion of the physician. However, it is desirable that persons past 45 years of age be examined annually inasmuch as degenerative disorders become increasingly manifest around this period.

A mandatory basis of periodic examination is usually applied to workers who are exposed to processes or materials that are definite health hazards or whose work involves responsibility for the safety of others. Substances like lead or carbon tetrachloride, capable of causing occupational disease, are usually subjected to process controls to keep the workers reasonably safe from poisoning; caution dictates the advisability of periodic medical examination to be certain that the engineering controls are effective. This also enables early detection of the hypersusceptible individual and the worker whose personal unsafe practices defeat the control measures.

Frequency of the examination will vary in accordance with the quality of the engineering control, the severity of the exposure and the individual findings on each examination. Thus, some exposures might justify examinations or laboratory tests of the

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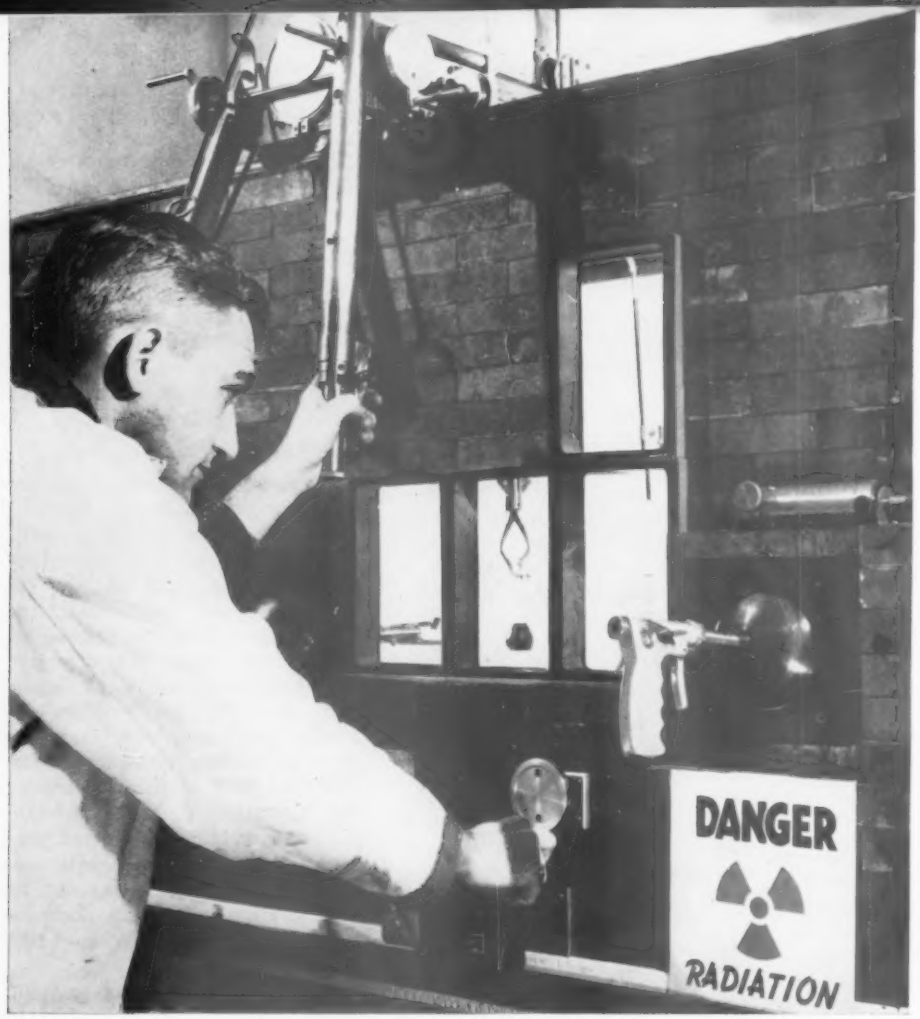


CHEMIST uses remote control manipulator to handle radioactive liquid behind wall of lead bricks and special lead glass. (Brookhaven National Laboratory)

RADIATION PROTECTION—

The Big Problem of the Atomic Age

Like alternating current, radiation was once considered too hazardous to be generally useful. Now more than 1,200 companies are meeting the problem first hand and solving it, thanks to AEC pioneering

By CHARLES G. MANLY

HAZARDS from radiation and problems of radiation protection are not new. Becquerel announced in 1896 his discovery of the radioactivity of uranium, and the Curies announced their discovery of radium in 1898. As early as the 1890's damage from x-rays began to show up in some workers.

Problems of radiation protection are faced in varying degrees in almost every stage of the atomic energy program, from the mining of ore to the final utilization of the finished products. More than 1,200 companies are meeting these problems first hand because of their use of radioisotopes. Many more companies will join them as industrial uses of radioactivity became more common.

The Government atomic energy program was established in the face of almost unprecedented

CHARLES G. MANLY is Chief, Policy and Program Branch Division of Civilian Application U. S. Atomic Energy Commission, Washington, D. C. This article was presented before the Eastern New York Chapter, American Society of Safety Engineers, Latham, N. Y., May 14, 1956.

problems. Some experts believed, for example, that nuclear reactors would create so much powerful radiation that it would be impossible to protect the operators by any means. They were wrong, but their fears indicate the scope of the problems faced in 1942.

Until that year, virtually all experience with radiological hazards came from small scale uses of radium, such as on watch dials, and from experiments in nuclear physics and medical uses. Although the amounts of radiation were small, many injuries and deaths had occurred during 50 years of this work. During the 1920's and 1930's, standards of protection were established. They provided valuable guidance, but the radiological problems faced by the founders of the atomic energy program were many times greater.

In place of a few radium dial painters doing standardized work and an occasional operator of a testing machine, thousands of workers soon were to perform hundreds of tasks in the vicinity of materials releasing much more radiation than men had ever coped with. In place of a few doctors and technicians handling minute quantities of radium and 15,000 to 50,000 volt x-ray machines, hundreds of scientists and technicians were to do laboratory work with material thousands of times more radioactive than radium and with particle accelerators with voltages running to tens of millions.

DUMPING high-level radiation wastes into trench of burial ground at AEC's National Reactor Testing Station, Idaho. Cart is emptied by moving handle near truck, keeping operator well away from contaminated contents.

Instead of about three pounds of radium under human control in the entire world, there would be radioactive material on this one project equivalent to millions of pounds of radium. There would be not one kind of radioactive material, but literally hundreds comprising almost every known element and some previously unknown, such as plutonium. Instead of x-rays, the chief danger of which had been a skin burn, there would be penetrating gamma rays and neutrons able to deliver damaging radiation deep within the body.

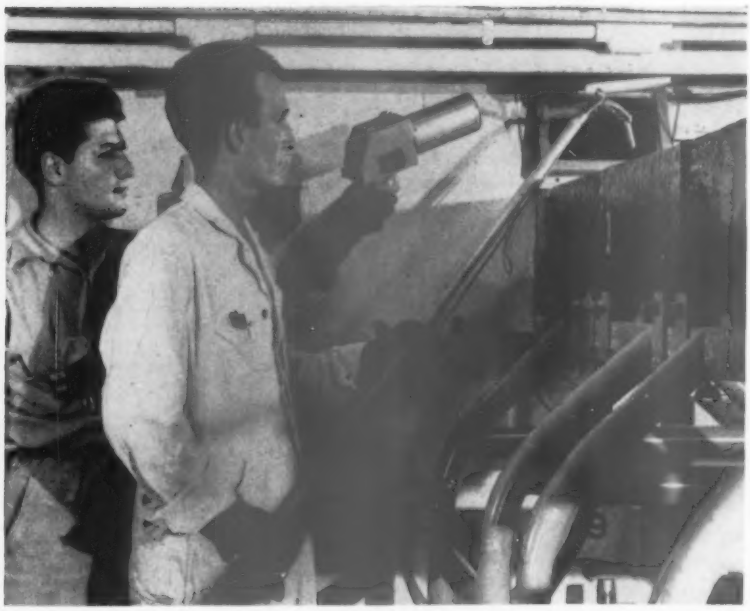
Our safety record is the result of their success in meeting the problems.

Nuclear radiations, inseparable from the atomic energy program, actually are manifestations of atomic energy. One form of nuclear radiation — the neutrons released in fission—is used to manufacture plutonium, uranium-233, and many specific radioisotopes. Other forms—alpha particles, beta particles, and gamma

HAND AND FOOT counter measures and locates contamination on hands and shoes and is standard equipment in labs where radioactivity is present. (Brookhaven National Laboratory)

ION CHAMBERS in breast pocket and film meter on lapel are standard equipment at Oak Ridge. Small meters on finger and wrist may be worn on parts of body specifically subject to exposure.

TECHNICIAN makes a radiation count of the sage on East Washington Desert near Hanford Works. Each year about 140,000 samples of water, air, earth, and vegetation are collected and analyzed.



MONITOR (left) checks samples of materials which have been irradiated in graphite reactor before they are removed by operator using hand tongs. (Oak Ridge)

rays—make it possible, for example, to use radioisotopes for medical diagnosis and treatment, and for experimental and industrial uses.

In large concentrations of material, either naturally radioactive or made so in various operations, these same types of radiations create potential hazards. Workers must be protected against them when they are generated or used in industrial processes. The public must be protected by safe handling of these materials.

Nuclear radiations, cannot be seen or felt. They are of two general types; one is bits of nuclear matter, from the nucleus of atoms, so small that they will never be seen—these are the neutrons, the beta and the alpha particles; and the other is electromagnetic waves —which are of the same general type as heat, light and radio waves, but of extremely short wave length—these are the gamma and the x-rays.

Nuclear radiations cause damage by a process called ionization, in which the particles or rays remove electrons from the atoms and molecules of any substance they strike—air, water, concrete, steel, human bodies.

In the human body, this disruption takes place mainly within the individual cells. A cell ordinarily recovers from light damage, but severe injury can cause it to die. Other damage to tissue and body fluids may occur from radiation, but cell destruction seems to be the chief one.

Radiation injuries may originate either from a source outside the body; or from radioactive materials which have been taken into the body by inhalation or ingestion. In either case, the effects depend upon the portion of the body irradiated and upon the intensity and period of irradiation.

Exposure to penetrating gamma or neutron radiation, as the result of an accident, could be sufficiently severe to result in illness or death. However, our principal effort is to limit daily exposures to the much lower values necessary to prevent detectable effects after many years of exposure.

The potential hazards from radiation within and around atomic energy installations vary with the work being done. Nuclear reactors, of course, generate large amounts of radiation of all kinds. A fission reaction, starting in an accidental assembly of too much fissionable material, would throw off heavy radiation. Dry radioactive dusts and sometimes mists present both external and internal hazards wherever radioactive materials are used. Equipment, machinery, materials, work benches and the like also can become impregnated with radioactive materials and become hazards.

In the presence of penetrating radiation, safety is maintained by massive shielding, by distance of workers from the radioactive source, by time limits of exposure, or by a combination of the three.

Protection from materials that can get inside the body and cause damage is accomplished by such means as controlled ventilation and by rigorous industrial housekeeping to prevent and control radioactive contamination. Where it is not feasible to build enough protection into operating equipment, workers must wear respirators or other protective devices.

Not relying on equipment and routines alone, the operators of AEC plants also make regular and special radiation measurements and surveys. Every worker in a radiation area is required to wear an instrument that measures his exposure, which is recorded at the end of each working day and double-checked by periodic medical examinations.

The radioactive wastes generated at atomic energy installations present special problems in protecting the area surrounding a plant or laboratory. These wastes include reactor coolants such as air, gas and water; plant ventilating air; liquid process wastes; liquid and solid waste material from reactor fuels; and miscellaneous contaminated material, such as machinery, tools, clothing, laundry wastes and cleaning materials and implements.

The release of industrial waste is rigidly limited as to kind and quantity, and the discharge, where it is released at all, is continuously and carefully metered and regulated. In and near all installations, continuous surveys and studies insure that all precautions are functioning properly.

Radiation protection influences almost every aspect of atomic energy work. It is an important factor in developing manufacturing processes, in designing plants and equipment, in planning and sched-

uling work, and in establishing operating procedures. It influences employee medical programs, selection and training of personnel, establishment of work routines, the clothing that workers wear, and even the way they wash their hands and where they can eat or smoke. The health physicist plays an important role in all of this.

A radiation safety record, such as that compiled by the AEC and its contractors, can not be achieved without considerable cost. The increased cost is encountered in all operations, from the processing of raw materials to the handling of finished products and wastes.

These costs sometimes pyramid. In a laboratory, for instance, the need to erect shields of lead brick, expensive in themselves, gives rise to the need for a workbench many times stronger than an ordinary bench, and it follows that the floor and substructure of the building must be designed to carry loads more typical of heavy industry.

A single shielded enclosure necessary for scientists to work in safety may cost as much as $80,000, compared to $2,000 in an ordinary laboratory. Work done in such a "hot cave,"as they are called, may consume five times as many man-hours as ordinary laboratory work.

WEARING protective clothing a health physics inspector measures radiation with a fish-pole meter. (Oak Ridge)

For one kind of plant that handles large amounts of radioactive material, estimates of original construction cost ran about 12 times what they would have been for a similar plant handling nonradioactive material. Nearly two-thirds of the operating expense for such a plant, including depreciation, would be incurred solely because radiation was present. This was an extreme case. However, in such a comparatively simple task as laundering contaminated work clothes, the costs may be half again as much as for ordinary clothes.

Experience and new knowledge may reduce the cost of radiation protection in the years ahead, but savings will be limited by the standards of radiation exposure that must be enforced.

With this background let us review some of the health and safety aspects of a nuclear power plant. From the point of view of safety, such a plant will have many of the same problems as a conventional chemical-fueled plant. It will differ in two important respects; in the nuclear power plant large quantities of radioactive material will constantly be created and held in storage; and the nuclear power plant will contain within the reactor vessel enough fuel for months, or years, of normal operation.

This latter condition, obviously, imposes requirements for controlling the rate of energy release. In addition to the radiation emitted during fission of the fuel and from the fission products, many of the materials of construction and materials used in the reactor will become radioactive.

Radiation from the bare core of a nuclear power reactor will give lethal dosages in a matter of seconds or minutes to anyone standing within a radius of several hundred feet. The radioactive fis-

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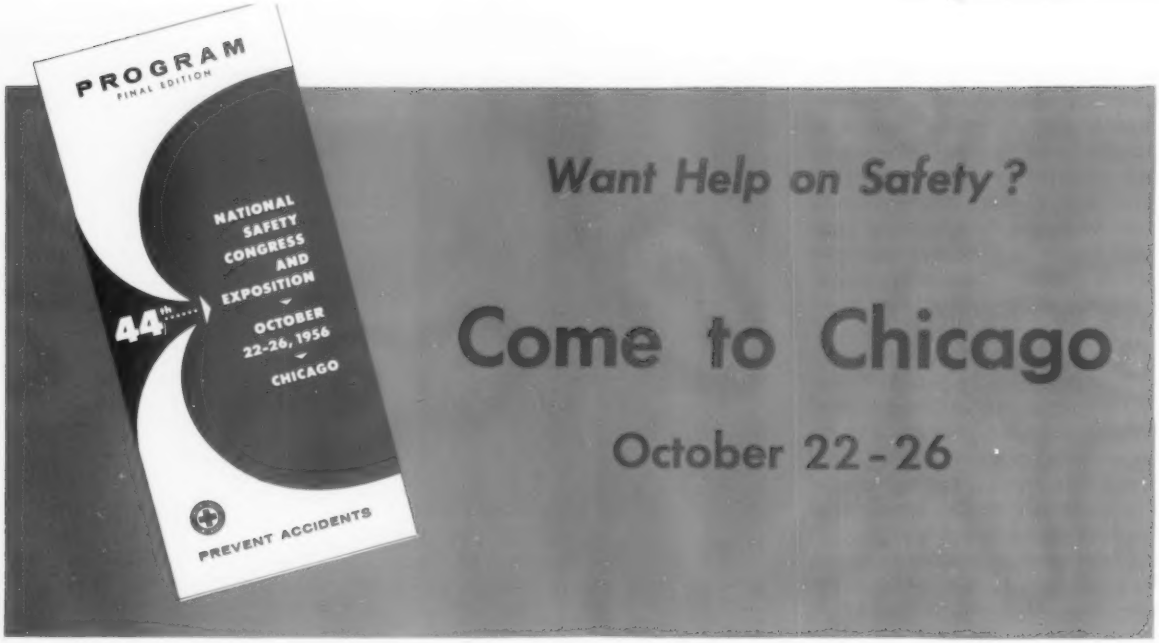
LAUNDRY MONITORING (right) checks and records contamination before clothing is sent to the laundry. (Oak Ridge)

WORKER uses a "frisker" to monitor his body and clothing. (Oak Ridge)



FLASH—Since the Preliminary Edition of the Congress Program went to press, two important gaps in the lineup of speakers have been filled.

Banquet speaker will be one of the country's outstanding newspaper men, Louis B. Seltzer, editor of *The Cleveland Press.* Mr. Seltzer has been associated with *The Press* for 37 years and editor since 1928. He came up from office boy, covered all the beats and became the youngest city editor on any big paper. His autobiography, *The Years Have Been Good,* will be published shortly.

Among his many national and local activities he is currently president of the Greater Cleveland Safety Council.

At the Annual Meeting Monday morning the speaker will be George Romney, chairman of the board, president and general manager of American Motors Corp., Detroit. In his career he has sold aluminum ware from door to door, picked sugar beets on Utah farms, poured molten iron in foundries, been a carpenter and secretary to a senator.

Mr. Romney is a tireless speaker and has been known to make seven speeches in five states in two days. As president of the Detroit Stake of the Church of Latter Day Saints of Jesus Christ he preaches every Sunday in communities in Michigan, Ohio and Ontario. He served as a missionary for his church in England and Scotland during 1927-28.

The distaff part of the program of the Annual Meeting is still to be filled.

The printed program, now in the hands of members, will aid delegates in planning their Congress week schedules. And even for those who will not be able to attend, it will provide some interesting browsing.

Early Morning Sessions. At 8:30, Tuesday through Friday, many delegates will be starting the day right by attending the Early Morning Sessions in the Grand Ballroom of the Conrad Hilton. Under the general theme of "How to Live a More Abundant Life," the topic of the first meeting, the sessions will go on to deal with essentials of safety leadership: How to Streamline Your Mind, How to Sell Your Ideas, and How to Lead Men. Details in the Program.

Speaker at these sessions will be Dr. David Guy Powers, Associate professor of speech, Queens College, New York.

General and Subject Sessions

Sessions dealing with topics which cut across sectional lines will be held mostly in the morning, leaving the afternoons free for the various sections of the Council to discuss their own special interests.

Of special significance will be the Labor sessions Wednesday and Thursday mornings, with nationally known speakers including Very Rev. Monsignor George G. Higgins, director of the Department of Social Action, National Catholic Welfare Council; George Meany, president of AFL-CIO, and Adm. Ben Moreell, chairman of the board, Jones & Laughlin Steel Corp.

Topics for subject sessions include: Auto Seat Belts, Associations and Small Business, Job Placement, Coordinating Human and Mechanical Factors, Electricity, Employee Attitudes, Machine Guarding, Industrial Medicine, Material Handling, Nuclear Energy, Purchasing, Vitamins for Off-the-Job Safety, and Noise.

Getting More Out of The Exposition

1. *Use your Congress program and Directory of Exhibitors.* Check off names and booth numbers of those you don't want to miss.

2. *Attend the show with an associate* or someone with similar interests. You will be able to discuss on the spot any products and services that might be useful in your program.

3. *Be inquisitive.* Exhibitors can't display all their products or all their "know-how."

4. *Don't depend on your memory.* Jot down names, ideas, materials, products, suppliers, and anything else that might be useful.

5. *Look over exhibitors' literature.* But keep only what you think will be helpful.

6. *Tour the entire exhibit.* You never know what or whom you might run into.

7. *Do a thorough job of screening* when you get back home. File important material; throw away the rest.

8. *Make a report.* Even if the boss doesn't require it, your comments on the Exposition as well as on the Congress sessions will be helpful to your associates who didn't attend as well as to yourself. Look it over a month after the show. You'll find it interesting—and valuable.

DR. DAVID GUY POWERS, associate professor of speech at Queens College, New York, who will conduct the Early Sessions Tuesday through Friday.

CHICAGO LOOP AND VICINITY

HOTELS

15. Alexandria
14. Allerton
8. Atlantic
7. Bismarck
4. Brevoort
2. Congress*
1. CONRAD HILTON*
17. Croydon
16. Devonshire
6. Hamilton
5. Harrison
10. LaSalle*
11. Morrison*
3. Palmer House
9. Planters
13. St. Clair
18. Sheraton

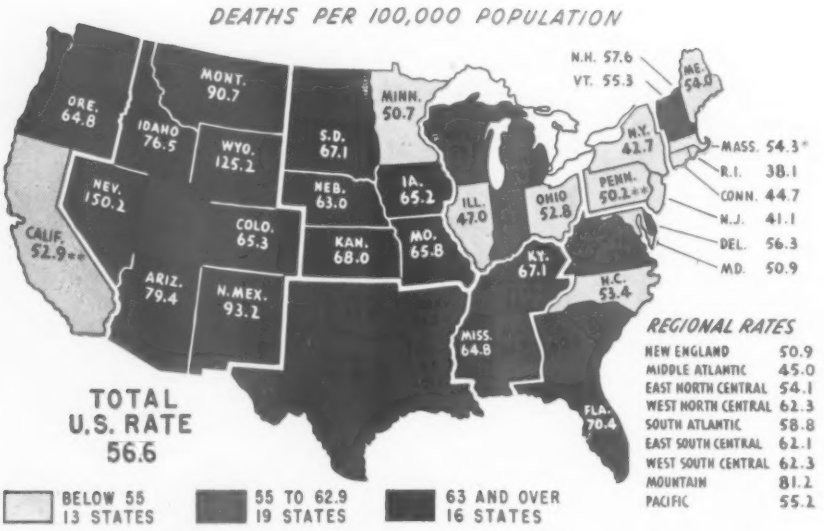
RAILROAD STATIONS

19. Dearborn
23. Grand Central
20. Illinois Central
21. LaSalle Street
22. North Western
24. Union

BUS TERMINALS

25. Greyhound
26. Trailways

*Congress headquarters hotels.



ACCIDENT DEATH RATES by states, 1955, as reported by state health departments. *National Office of Vital Statistics data. **Estimate based on incomplete information.

The 1955 Accident Toll . . . .

93,000 LIVES

By A. D. BATTEY

THE TREND of accidental deaths was reversed in 1955. The death total was approximately 93,000, or about 3,000 more than the total for 1954. However, the record is favorable compared to the three preceding years when the death total ranged from 95,032 to 96,172. The 10-year change in deaths, from 1945 (allowing for changes in classification methods) was a 2 per cent increase.

The 1955 accidental death rate was 56.6 per 100,000 population, with no adjustment for changes in the age distribution of the population since 1940. If such adjustment is made, the rate drops to 55.2. The change from 1954 for the adjusted rate was a 2 per cent increase.

The 1955 rates, both crude and adjusted, are the lowest on record except for 1954. Direct comparison with years before 1949 cannot be made because of changes in death classification methods, but allowing for those changes, the 1955 crude rate was 31 per cent less than the 1903-12 rate. If deaths from motor-vehicle accidents — which were few in 1903-12 — are omitted, the death rate for other accidents showed a decrease of more than one-half by 1955.

Only four disasters in 1955 caused more than 50 deaths—the August hurricanes and floods in the northeastern states, the May tornadoes in Kansas and adjacent states, the December floods in California and Oregon, and the October scheduled plane crash in Wyoming. In accidents resulting in five or more deaths the 1955 death toll was about 1,500, or 300 more than occurred in such accidents in 1954, according to tabulations of the Metropolitan Life Insurance Company.

Nonfatal injuries in 1955 are estimated at about 9,350,000. Approximately 340,000 of the injuries resulted in some permanent impairment, ranging from the loss of part of a finger to total crippling. The remaining injuries resulted in temporary disability extending beyond the day of the accident, but in many cases to only a few days.

Accidents vs. Disease

Detailed information on deaths from disease is not available for

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A. D. BATTEY is Assistant Director, Statistics Division, National Safety Council, and editor of *Accident Facts*. This summary of the accident experience of 1955 is based upon *Accident Facts—1956 Edition*, the Council's annual compilation of essential information about accidents. This booklet was recently distributed to members.

1955, but it is reasonably certain that accidents held the same position as in 1954. In that year the crude death rate for accidents was approximately 56—the fourth highest rate for any cause. The leading cause was heart disease, with a death rate of 347. Cancer was second, with a rate of 146, and vascular lesions of the central nervous system were third with 104.

Eighteen years earlier, in 1935, pneumonia and nephritis had death rates considerably higher than the accident rate, but by 1954 the pneumonia rate had dropped 63 per cent and the nephritis rate 61 per cent as a result of new medicines and improved medical techniques.

From age 1 to age 35 there were more deaths in 1954 from accidents than from any other cause.

The 1954 accident rate for males was much higher than that for females—78 compared to 34.

For males, only heart disease with a rate of 417, cancer with a rate of 154 and vascular lesions with a rate of 102 outranked accidents as a cause of death. Among females, also, only three causes had higher death rates than accidents: heart disease, 280; cancer, 137; and vascular lesions, 106.

For males alone accidents were the leading cause of death from age 1 to age 36.

DEATHS AND DEATH RATES OF WORKERS BY MAJOR INDUSTRIES, 1955

Industry Group	Total Deaths	Deaths per 100,000 Workers	No. of Workers Per Death
Mining, quarrying, oil and gas wells	800	104	960
Construction	2,400	76	1,300
Agriculture	3,700	55	1,800
Transportation	1,300	44	2,250
Service	2,300	15	6,700
Public Utilities	200	14	7,200
Manufacturing	2,100	13	7,900
Trade	1,400	11	8,800

Costs. Accident costs that can be estimated totaled approximately $10,300,000,000 in 1955. Wage loss, including the present, or discounted, value of anticipated future earnings for deaths and permanent total disabilities, was about $3,400,000,000; medical expense, $850,000,000; overhead cost of insurance, $1,800,000,000; property damage in motor-vehicle accidents, $1,700,000,000; property damages in fires, $885,000,000; indirect costs due to work accidents, $1,700,000,000.

Age Distribution

In 1955, as in other years, the best accidental death record was for children 5 to 14 years old. The death total was 6,150, and the death rate per 100,000 population was approximately 20. The rate was about the same as in 1954, but 51 per cent less than the average rate for the 10 years 1903 to 1912.

The largest accidental death total, and the highest rate, was recorded for persons 65 years old and older. Deaths numbered about 26,000 and the rate was 184. This was 1 per cent less than the rate for 1954; and 21 per cent below the 1903-12 average rate, after allowing for changes in methods of classifying deaths.

In the age group 25 to 44 years the 1955 rate was 45, a 4 per cent increase from 1954, but a 46 per cent drop from 1903-12. For children under five years there were 46 deaths per 100,000 population, a decrease of 3 per cent from 1954 and 52 per cent less than for 1903-12. Persons 15 to 24 years old had a 1955 rate of 60—7 per cent above the 1954 rate, but 8 per cent under 1903-12. Among people 45 to 64 years old the rate was 57, a 2 per cent increase from 1954, but a 44 per cent drop from 1903-12.

Regional Death Rates

Of the 46 states reporting accidental deaths in 1955, 12 had

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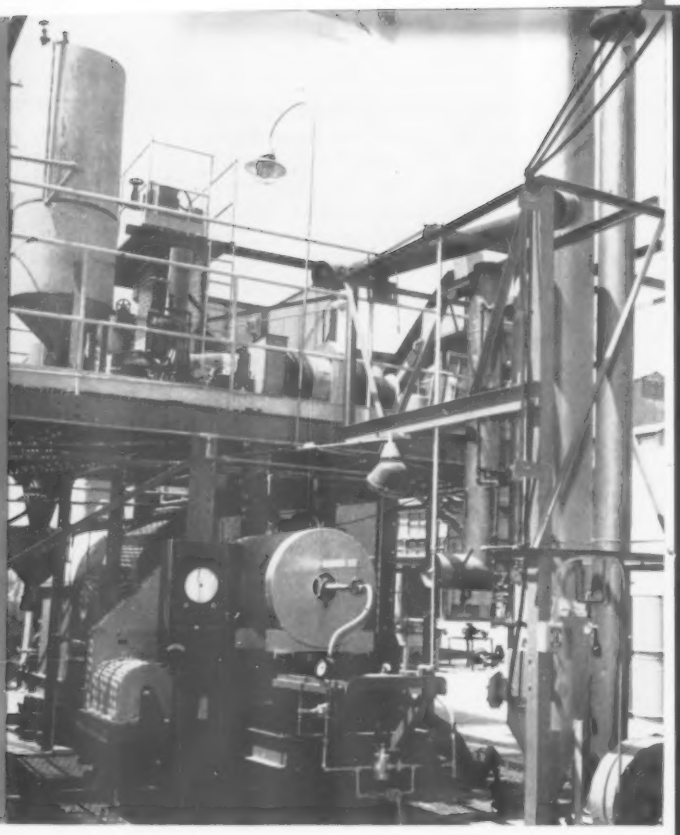
How many will he ring up THIS year?



A COOL EFFECT with a minimum of glare is obtained with this color scheme for pilot plant painting. Guard rails are yellow; gas lines, orange; flue vents, gray; caustic lines, yellow; switchgear, blue; machinery, blue-gray. Structural steel is olive-green; equipment in shaded areas, light gray-green; in exterior areas exposed to bright sunshine, a deeper gray-green.

HOW COLOR CAN SERVE YOU

By D. E. GARRETT
and
W. A. JORDAN

IN promoting safety and efficiency, industry has an important tool—the functional use of color. By marking pipes and equipment with color signals accidents can be reduced. Extending color coding through the plant permits ready identification of all lines and equipment, and simplifies job training. Therefore, costly errors are lessened and the appearance of the plant is improved.

Another important function of color is the improvement of individual comfort and efficiency. Eyestrain and fatigue can often be alleviated by a simple change in the color of a wall or machine.

These and other advantages can be had for little more than the cost of a routine painting. Established color codes and a few basic principles of functional decoration are valuable aids.

Color Coding

Identification of piping and equipment by color is a practice of long standing, particularly with the chemical industry, although it has become widespread only recently. As a formal system, color coding was first suggested in 1909 when the Association of Edison Illuminating Companies published a report on *Standard Colors for Power Station Piping*. Since that time the number of color codes developed by companies and groups has steadily increased.

In an attempt to establish a uniform and comprehensive system the American Standards Association in 1922 formed a committee on the Identification of Piping Systems under joint sponsorship of the National Safety Council and the American Society of Mechanical Engineers. *Its Scheme for the Indentification of Piping Systems*, ASA A13-1928, reaffirmed 1947[1], has become the standard for color coding systems in the United States, and applications of it can be found throughout the country.

The ASA recommends five basic color groups:

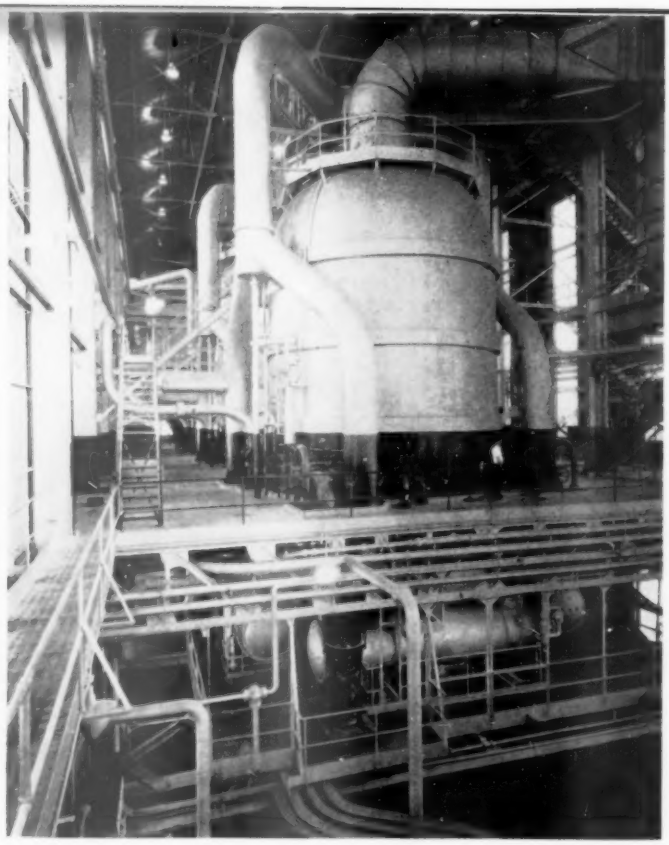
1. F, fire protection—red.
2. D, dangerous materials—yellow or orange.
3. S, safe materials—green, or the achromatic colors, white, black, grey, or aluminum.
4. P, protective materials—bright blue.
5. V, extra valuable materials—deep purple*.

The classifications were made purposely broad, and the number few, to permit easy recognition for maximum safety and effectiveness. The colors were chosen for their ease in being distinguished from one another, and were assigned in as logical a manner as possible, Thus, red has historically been used for fire protection equipment and its intense color permits rapid location of such equipment in a plant.

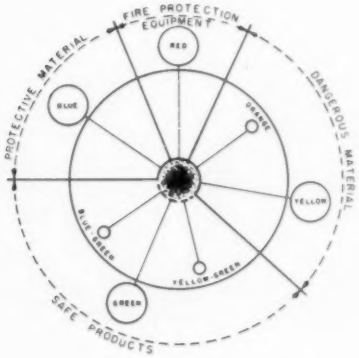
For marking hazards, yellow and orange are especially effective, since of all the saturated chromatic colors they have the highest reflectivity and can be most easily recognized under conditions of poor visibility. Bright blue is a good color for focusing attention,

D. E. GARRETT and W. A. JORDAN are with American Potash and Chemical Corp., Trona, Calif.

*Purple, the fifth color group, since 1953 has been officially reserved[2] for the designation of radiation hazards, and is no longer recommended by the ASA for extra valuable materials. Revisions of the ASA A13-1928 system will undoubtedly delete this color from the basic group in order that it may be used as a radiation color alone.



IN THIS large multi-storied evaporator unit the color coding system was waived in favor of functional effect because of the size of equipment and lines. Dull aluminum is used for girders, steam lines and bodies at window level to reduce window-to-equipment brightness ratio and to provide a high level of illumination. Dark dado is used for easy maintenance in valve area; guard rails are yellow and black; machinery, deep blue-gray; other steam lines, alumnium.



ASSIGNMENT of various colors for identification of materials and equipment.

and effectively sounds the precaution warning, while green traditionally designates safety.

Code for Piping

The intent of the ASA scheme is to provide a general method for identification that can be applied broadly with the least conflict with existing methods. In the case of piping it provides the choice of using the recommended colors merely in bands, or as a complete coating for the length of the pipe. If bands are used, it is suggested that they be placed near all valves, junctions, or other critical points along the line, and that they be spaced at uniform intervals along straight sections of pipe. By using suitable stripes on the bands, or on continuously painted pipe, identification can be made of as many different fluids or line as are required. Whenever desirable, the name of the fluid can be stenciled on the band.

The ASA scheme, is a sound, basic classification method that permits the user to adapt it to his own needs and facilities. A company considering the system may decide to paint its piping completely, or simply to band its lines, for reasons of economy. The continuous colors are undoubtedly more effective but their expense is naturally greater.

Self-adhesive plastic tapes have made banding an easy and economical method to carry out and to maintain. It is often the practice to band part of the lines and to completely color others, such as pipes that require painting for corrosion resistance or that are isolated and easy to paint. The resulting mixture of the two types of identification is perfectly successful.

It also remains for the individual company to decide upon the extent of subdivision, or the number of fluids to be included in the color code system. As Table I indicates, some variation is to be found among the major chemical and petroleum firms on this point, particularly where specific problems are created by special products. However, simplicity and clarity usually require that the number of coded materials be limited. In addition, the name of each fluid, or an abbreviation thereof, is often stenciled on the bands together with a direction-of-flow arrow, so that a particular material is easily identified, even with a restricted number of code colors or striping designations.

Choice of colors for piping is seen, in Table I, to vary considerably among the companies listed.

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WHAT COLOR CAN DO

- **Conserve light**
- **Reduce eyestrain and fatigue**
- **Increase visibility at point of operation**
- **Identify contents of containers and pipe lines**
- **Give feeling of either warmth or coolness**
- **Promote better housekeeping**
- **Raise morale through cheerful surroundings**

SECOND FLOOR of mix house. Nitroglycerin is emptied from buggy in small building at upper left, flows through trough to mix house. Non-explosive ingredients come into mix house on rails in foreground. Steel rails end and wooden rails begin just in front of doors. Heating and ventilating equipment is in building at right.

Our Fabulous Dynamite Makers

They treat their power-packed product with respect; that's why their accident rates are phenomenally low

By DON WHARTON

WE CALL this the atomic age, but our real workhorse still is dynamite. The world is largely rock and our entire industrial economy depends to a considerable extent on our being able to move this rock. Whether it is being shoved aside or put to work, the prime mover is dynamite.

The easy-graded highway or rail line, the deep seaway, the aqueduct rammed through mountains, our 500,000,000-mile network of pipelines through rugged and swampy terrain—all are made possible by dynamite. Dynamite blasts enable us to find oil, mine coal, make concrete and steel, and obtain many key raw materials.

Last year 800,000,000 pounds of dynamite were manufactured in this country. Each pound upon detonation will liberate enough energy to lift a 3,000-pound automobile 300 ft. into the air. A routine 1,500-pound quarry blast will tear off the edge of a cliff and produce 4,500 tons of rock, all efficiently broken into 6- to 24-in. pieces. Yet ingenuity has made the manufacture of dynamite safer than industrial work as a whole. In 1954, for each million man-hours of work, American industries as a whole had seven disabling injuries. The high explosives industry had two.

How is this possible? To find out, I went recently to one of the nation's 36 dynamite plants, the Atlas Powder Company's Reynolds Works, tucked away in Pennsylvania's Blue Mountains. As I approached the plant, a mile before any building was in sight a gate loomed across the road. The gatekeeper doesn't simply ask if you have matches, cigarette lighters or firearms. He searches you. He also removes the lighter from your car—even if you are only going to the plant office. Before entering the dynamite manufacturing area I was stopped again and handed a pair of thick rubber overshoes so my shoes wouldn't create a spark.

The workmen wear special shoes with rubber soles; even their shoe laces are a special kind, without metal tips. Each day from the plant laundry they draw white cotton coveralls, underwear, socks and gloves—kept surgically clean. The only pockets in the coveralls are outside ones, made of mesh so that tools or other metal objects can't be inadvertently carried. In cold weather, if a workman wears extra trousers under his coveralls, holes must be cut

NITROGLYCERIN is trucked from NG house to mix house.

NITRATING glycerin, NG operator watches temperature on dial and mixing action through window.

in each trouser pocket. Once a month there's a sudden, unannounced search of all employes—for matches. If one is found the worker is suspended for 10 days. If it happens again, he's dismissed. Every worker is furnished salt and vitamin tablets, given an annual physical examination, a monthly health checkup.

The manufacture of dynamite begins in a tiny, white building perched up on a hillside — the "NG" house—where nitroglycerin is made by mixing glycerin with acids. The "NG" house is 500 ft. from any other manufacturing building and around it are huge earthen barricades, 60 ft. thick, shaped to direct the force of an explosion upwards, so that a blast here wouldn't set off explosions down the line. The house is made of wood so that if there were an explosion the whole structure would disintegrate, rather than become hazardous missiles hurtling through the air toward other sensitive spots. Inside, the first thing I noticed was a sign: "MAN LIMIT 4."

Every critical building has its own man-limit rules which keep down the number of fatalities possible in any explosion. Also, they eliminate one cause of accidents: confusion resulting from crowded conditions. At several stops on the dynamite line my entry into a building meant its man-limits were being exceeded. Each time, without a word, a workman would step outside.

The floor of the "NG" house is made of lead, which will neither burn nor spark. All machinery

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LOOSE DYNAMITE is carried in covered hardwood hand carts on rail car from mix house to cartridge house.

ESCAPE CHUTE beside stairs at nitroglycerin house. Note man-limit sign. (Atlas Powder Company photos)

HANDLING AND STORAGE OF SHEET METAL

Published by National Safety Council
425 North Michigan Avenue, Chicago 11

1. The accident prevention problems involved in the handling and storage of sheet metal are discussed in this data sheet. For purposes of this discussion, sheet metal means iron and steel sheet up to 0000000 gauge or 0.4902 inches, the maximum U. S. Standard sheet metal gauge for steel and open hearth iron sheet of 499.7 pounds per cubic foot.

2. According to a survey of many plants in the Chicago area, the majority of companies receive sheet metal stock in banded packages or bundles. Companies lacking cranes for unloading may prefer to receive stock in bundles on flat cars so that fork lift trucks can be used for unloading. In some cases it is received in crates, and occasionally it is received loose.

3. Two pieces of 4-inch by 4-inch (preferred) or 2-inch by 4-inch hardwood blocking are often banded to the bottom of packages or bundles for support.

4. It is desirable that the supplier be instructed to furnish the material banded or crated, if required by the nature of the work. It is also desirable to specify the maximum weight and maximum size of sheet per package. These specifications will be governed by the capacity of the handling equipment in the plant.

5. Whether the material should be paper-wrapped, shrouded, wired or banded, mounted on skids, or otherwise packaged should also be indicated (See Figure 1). If the entire bundle is to be handled by a magnet, the strength of banding material should be specified.

6. Where a plate-lifter attachment is used with an overhead crane for unloading sheet metal from cars, the vendor should be requested to place 4-inch blocking between stacks on the car to allow room for the attachment to be lowered between the stacks.

This Data Sheet is one of a series published by National Safety Council, reflecting experience from many sources. Not every acceptable procedure is necessarily included. Data Sheets should not be confused with American Standard Safety Codes, federal laws, insurance requirements, state laws, rules or regulations, or municipal ordinances.

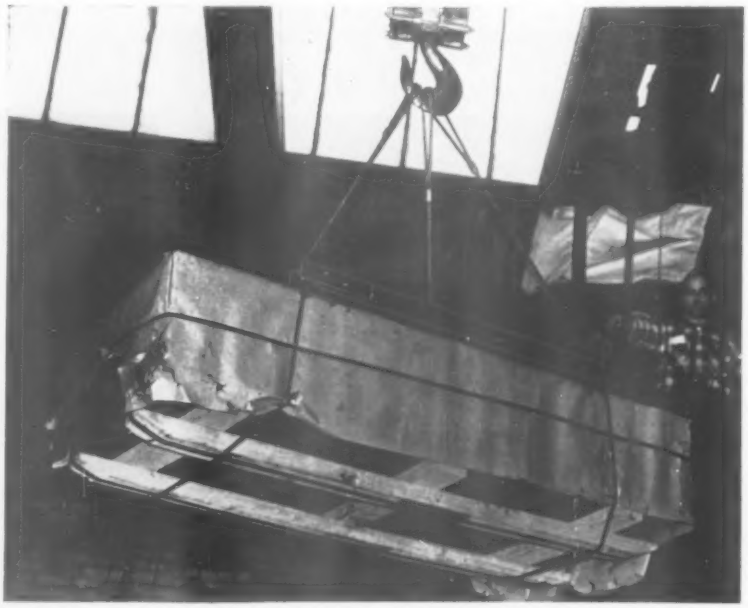

FIGURE 1. Package of sheet steel received as shipped on skid, paper-wrapped and steel-banded. Note spreader bar used on top of package for hoisting. (Courtesy International Harvester Company)

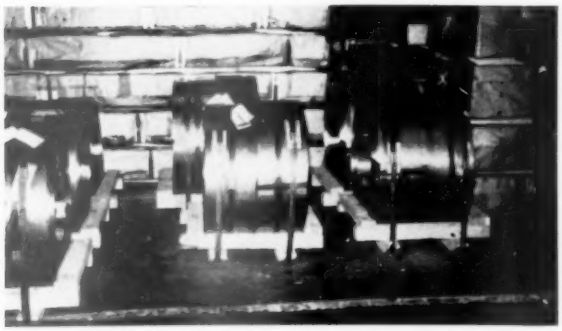

FIGURE 2. Coils received banded to skids. (Courtesy Heintz Manufacturing Company)

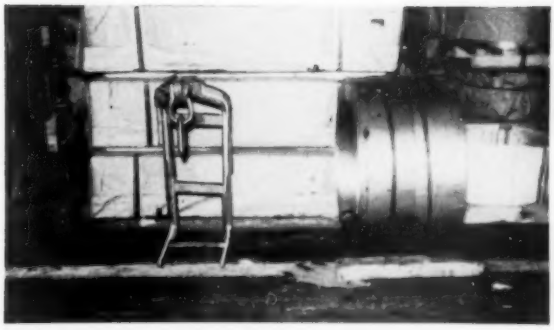

FIGURE 3. Device for lifting banded coils, for use with crane. (Courtesy Heintz Manufacturing Company)

Handling Packaged Sheet Metal

7. Packages and banding should be inspected on receipt and repaired, if necessary, to permit safe handling to the point where the packages are opened. In applying or removing banding or handling banded packages, employees should observe all required precautions.

8. They should wear impact-type eye protection and gloves, use a special strap cutter, stand to one side in case a strap end should fly, cut at the edge of the bundle and hold the free end of strap to prevent it from flying, and never handle a bundle by the strapping.

9. Because the bundles are usually long and wide, the use of trucks of special size is recommended. When packaged stock is handled by a fork truck, it is important that the truck's capacity, in terms of distance between the load center and the heel of the forks, not be exceeded. Bundles wider than the length of the forks should not be handled by a fork truck.

10. Likewise, because of the weight of the material, care should be taken not to overload cranes, elevators, and other equipment. Capacities should be posted on trucks, cranes, and elevators.

11. Where bundles of sheet metal are handled by a fork truck, all aisles should be at least 3 feet wider than the maximum width of any truck and load for the safety of pedestrian traffiic.

12. If packages are broken in the receiving department, they should be rebanded, if possible, or special trucks or skids with retaining brackets to prevent sheets from sliding may be used. Oiled sheets, especially, should not be transported at any time unless banded.

13. Sheet metal in rolls or coils may be received banded on special skids for safe, convenient handling (See Figure 2). Special lifting devices may be used with cranes for handing coils and rolls (See Figures 3 and 4).

FIGURE 4. Side view of lifting device (shown in Figure 3) in use. (Courtesy Heintz Manufacturing Company)

Handling Loose Sheets

14. Special grabs, jigs, fixtures, electric magnets, vacuum lifters, and similar devices are available for handling sheet metal with cranes and hoists (Figures 5, 6 and 7). Spreader bars can be used on slings to prevent them from slipping (Figure 1).

15. When sheet metal is handled by crane, customary precautions should be observed.* For instance, slings should be placed securely so that loads will not slip. Standard hand signals from hooker to crane operator should be used.

16. Loads should not be carried over machines, work areas or workmen. Warning signals should be used to keep workmen out from under loads. Pads or shields should be placed over sharp corners where slings pass around the load.

17. When electric magnets are used, special precautions are necessary to guard against the possibility of power failure. Material should be carried by magnet only over areas where a falling load can do no harm to personnel nor damage to machinery.

18. Special precautions are required in handling loose sheets on flat trucks. If the sheets are not secured, they may easily slide off and strike workers or slide off the

*For a full discussion of handling loads by overhead crane, see *Accident Prevention Manual for Industrial Operations*, National Safety Council.

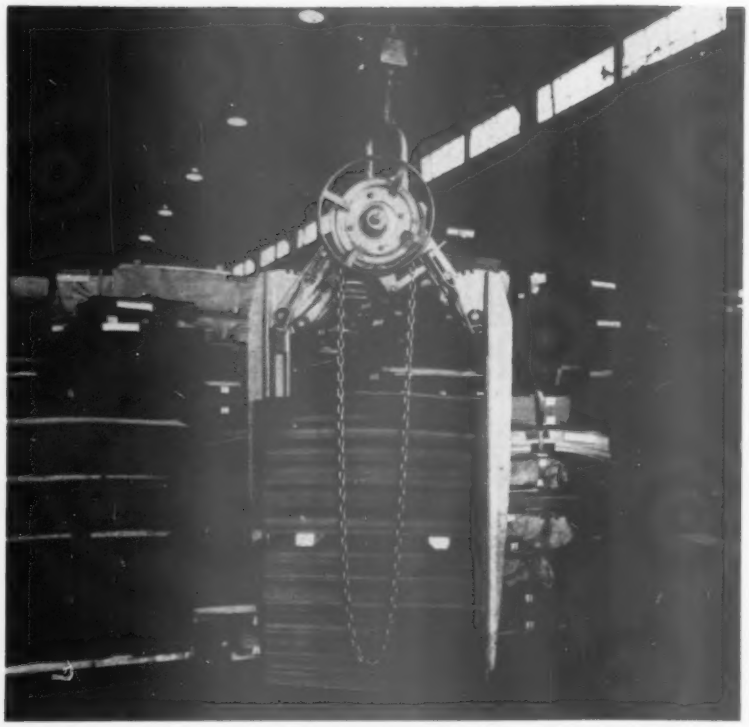

FIGURE 5. With this device, loose bundles of tin plate can be handled without skids and with no damage to edges or bottom sheets. (Courtesy Cullen-Friestedt Company)

end and tip the truck, sometimes forcibly propelling it in the opposite direction.

19. To obviate these hazards, the overhang of the truck bed should be limited to wheel radius plus 3 inches, and the sheets should not overhang the end of the truck bed. Wide sheets should never be piled on narrower sheets.

20. Retaining stakes should be installed on trucks, or the sheets should be temporarily banded to one another and to the truck. Chain binders may also be used for this purpose (See Figure 8).

21. Many companies handle sheet stock on A-frame trucks. In this case, the sheet stock should not extend above the top of the A-frame. If it does, the center of gravity may be raised to a dangerous extent. In loading and unloading, the load should be kept approximately equalized on both sides of the carrier to prevent tipping.

22. A-frame trucks should be pushed and guided from the sides and rear and not pulled, to prevent foot injuries and to prevent the worker from being pinned against obstructions.

23. In all cases, truck wheels should be securely blocked when the truck is being loaded or unloaded. While loading or unloading, workmen should stand at one side and not at the end of a truck; the truck may be propelled in either direction if the load is not properly placed.

Handling at Machines

24. When material is being unloaded from truck to stockpile, the load should be kept equalized to prevent its becoming unbalanced. If the load is handled by crane, care should be taken to keep the hook centered over the lift.

25. Machine operators or sheet metal fabricators should be provided with hand tools and mechanical equipment necessary for

FIGURE 6. Capacity load in 6-ton lifter used for storage and general handling. Such lifters provide an economical, efficient, and flexible method of handling materials. (Courtesy Cullen-Friestedt Company)

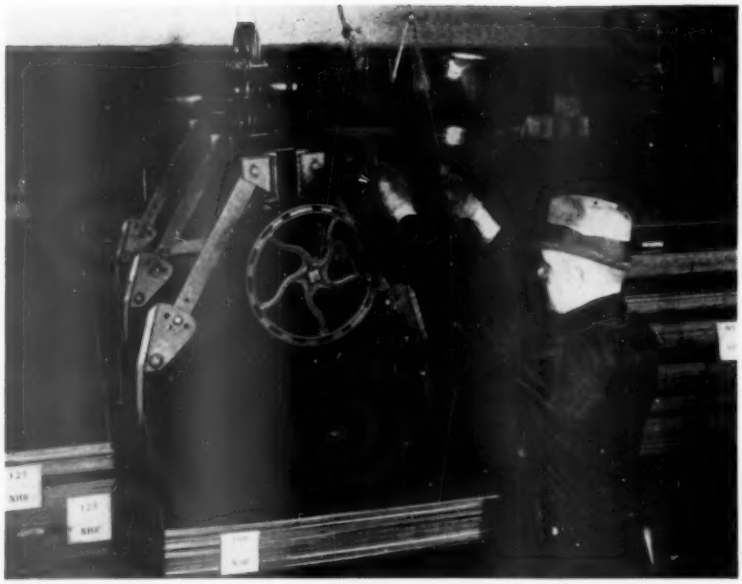

FIGURE 7. Hand-operated lifter of 5-ton capacity in storage department. Note very small space between piles. (Courtesy Cullen-Friestedt Company)

safe handling of sheets from stockpile to machine (Figures 9 and 10). Vacuum cup lifters are available which make it unnecessary for workmen to touch sheets.

26. Storage of stock at the machine should not exceed a single shift's run. The top of the working stockpile should not be substantially higher than the working surface of the machine. Some find it convenient to have the top of the pile an inch or two above the working surface. Elevating tables are available, which will automatically keep the top of the stockpile at the best level (Figure 10).

27. Extra stockpiles of material which, in addition to the working supply pile, must be placed at a machine should be limited to a number which will allow free movement around the machine. Stockpiles should not protrude into aisles nor interfere with fire equipment, switch boxes, and other equipment. The stockpile area should be defined by a painted line, along which the piles should be lined up.

28. Material stockpiled at machines or working stock at machines, even when well clear of aisles, should be so placed or protected that workers will not be able to strike against sharp edges or corners. Wide sheets should never be piled on top of narrow sheets.

Scrap

29. Provisions should be made for the removal of scrap and, if possible, its reduction at the machine. In no case should scrap be permitted to accumulate on the floor.

30. Receptacles at the machine should be emptied and replaced before they become overloaded and too heavy for the manual or mechanical means of handling being used. Scrap should not be placed in such a way that it protrudes over the sides of the receptacle.

FIGURE 8. Bundle of sheets on steel flat truck, showing method of binding bundle to truck. (Courtesy Heintz Manufacturing Company)

FIGURE 9. Magnetic separator magnetizes all sheets alike, creating repulsion between sheets and causing them to separate easily for faster, safer handling. (Courtesy Dings Magnetic Separator Company)

FIGURE 10. Shear being fed is beyond left edge of picture. Center table from which stock is fed to shear is hydraulically raised by treadle to keep top sheets slightly above shear table height. Steel frame under skidded stock permits rebanding of left-over bundle before its return to storage. Stationary table at right is kept loaded with reserve stock bundled by crane operator. When last sheet is fed, operator lowers center table and pushes reserve bundle from right table onto center table to continue operation. Both tables have conveyor-type roller tops. (Courtesy International Harvester Company)

31. Loose strapping removed from bundles should not be permitted to accumulate on the floor of the storage area or at machines. It should be reduced, folded or rolled, and placed in scrap receptacles.

Storage

32. Where sheet sizes permit, it is advantageous to palletize sheet metal for storage. Loads should be bound to the pallets, especially when pallets are tiered.

33. Where there are several piles of material of similar size, piles should be worked down evenly (not one pile worked down and another left full height). Single unsupported piles are dangerous.

34. Injuries occur when passing workmen strike their hands or other parts of their bodies against sheet metal which overhangs the aisles. Material piles should be kept well back from aisles or provided with corner guards. Markers or painted lines should define aisleways, storage, and clearance areas.

35. Care should be taken not to exceed safe floor loads. Marks or bands may be painted on walls and columns to indicate maximum height of piles within the limit of the permissible floor load. Clearance should be allowed at all overhead sprinklers.

36. Where material is not palletized and where sheets of several different sizes are stored in comparatively small quantities, special steel storage racks should be provided. When loose sheets are stored on edge in racks, they should be handled from outside the racks, to prevent workers from being pinned between the sheets and the sides of the racks or adjacent materials or structures.

37. Correct piling of bundled sheets and of coils, as specified by

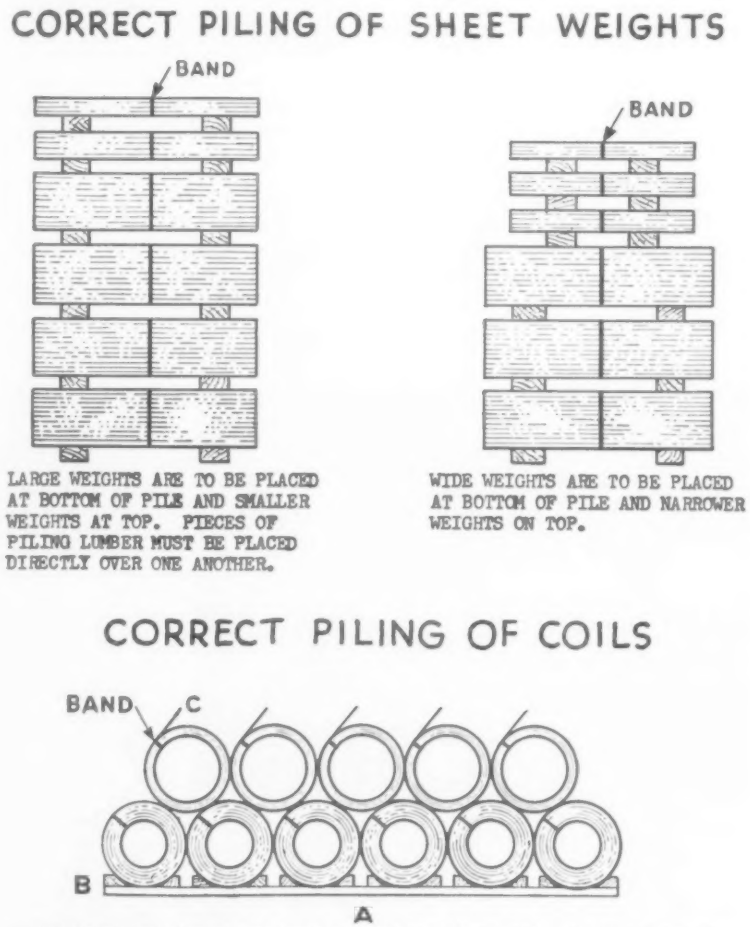
CORRECT PILING OF SHEET WEIGHTS
BAND
LARGE WEIGHTS ARE TO BE PLACED AT BOTTOM OF PILE AND SMALLER WEIGHTS AT TOP. PIECES OF PILING LUMBER MUST BE PLACED DIRECTLY OVER ONE ANOTHER.
BAND
WIDE WEIGHTS ARE TO BE PLACED AT BOTTOM OF PILE AND NARROWER WEIGHTS ON TOP.
CORRECT PILING OF COILS
BAND
C
B
A
ALL COILS IN BOTTOM ROW MUST BE BLOCKED (SEE "A"). WHEN A SKID IS PROVIDED, COILS MUST BE PLACED WITHIN LIMITS OF SKID (SEE "B"). HEAVY PROTRUDING ENDS OF COILS MUST BE PLACED UPWARD (SEE "C").

FIGURE 11. Correct piling of bundled sheets and of coils. (Courtesy Armco Steel Corporation)

one company, is shown in Figure 11.

Personal Protective Equipment

38. Minimum personal protective equipment for those who must handle sheet metal by hand consists of hand leathers or leather gloves, wristlets, goggles and safety shoes. Workers should wear shin guards, arm guards and protective aprons when they handle large, thin sheets of metal that may come in contact with their legs or bodies.

39. Operators of sheet metal processing machines, if handling large sheets, should wear the full complement of personal protective equipment. There is, however, some difference of opinion regarding the wearing of gloves. As a general principle, it is not considered safe practice for men to wear gloves while operating machinery; in the handling of sheet metal, however, hand protection is needed.

40. If the machine is fully and effectively guarded so that the operator's hands cannot get to the point of operation, then it is feasible to use hand protection. In these circumstances, many member companies prefer hand leathers to gloves.

41. If machine operators are handling small sheets (as in Figure 9), much of the above protective clothing may be dispensed with, and finger cots may be substituted for gloves or hand leathers.

42. Eye protection and leather gloves should always be worn by men who apply, remove or handle steel strapping.

ACKNOWLEDGMENT

This Data Sheet was prepared by the Chicago Chapter of the American Society of Safety Engineers. It has been extensively reviewed by members of the National Safety Council and representatives of chapters of ASSE. It has been approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.

If You Operate a Company Plane

By JEROME LEDERER

Safety is a full-time job. In the home, the factory, along the highway or the airway, it is a job that requires alertness, awareness and decision—*right* decision, with little recourse to a second try. No matter how thoughtful or safety-conscious we may be, none of us are goof-proof. Unless we are nudged into a reaffirmation of safety standards and a re-evaluation of procedures, we are prone to become automatic in our doing and this can be symptomatic of our undoing.

In the safe and efficient operation of aircraft, a modicum of carelessness can lead to complete failure of flight—a failure measured in lives lost as well as property damaged.

Fortunately, several sources are available to aid us in the maintenance of safe standards of aircraft operation. For example, Flight Safety Foundation offers its member-subscribers bulletins which detail information vital to the safe operation of company aircraft. Much of this information is gathered through personal contact with pilots and aircrewmen, many of whom have experienced difficulties and whose learned lessons are direct routes to improved safety and efficiency in aircraft operation.

Other helpful and essential information is compiled from experiences of the airlines and the military, each experience applicable to some phase of business airplane operation. In addition, FSF's *Mechanic's Bulletin* supplies ground crewmen with information and safety tips to assist them in their important work as overseers of the machines that provide the air transportation for busy executives.

The National Business Aircraft Association from time to time provides its members with safety facts to aid the "good operations" programs of executive aircraft operators.

Both the CAA and the CAB are excellent sources of facts and figures concerning aircraft operation. Several individual publications are available as well as accident reports and statistics which, translated, are good barometers of what is and what is not a safe operating practice.

In addition to these sources, individual aircraft manufacturers, several training centers, i.e., more recently Flight Safety, Inc., (which is in no way related to the long-established Flight Safety Foundation) and the Air Transport Association itself offer safety information to those who contact them for specific details and/or opinions from which decisions relating to equipment, systems and procedures may be finalized.

Everyone is interested in safety, and the fraternal approach to solutions involving safety in aircraft operations has never been more evident than it is today. If you recognize a need for assistance in your business aircraft safety program, that assistance is available from any or all of these sources, and for good reason... without that help

"The airplane is no earthly good."

JEROME LEDERER is Managing Director, Flight Safety Foundation, Inc., New York.

FOR DISTINGUISHED SERVICE

National Safety Council awards for outstanding records

THREE TYPES of awards are given by the National Safety Council to industrial units in recognition of outstanding performance in accident prevention:

1. THE AWARD OF HONOR is available to units whose records, though not perfect, meet rigorous standards of excellence. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency rate and severity rate. The Award of Honor is available also to units which complete 3,000,000 man-hours without a disabling injury.

2. THE AWARD OF MERIT has similiar, but less exacting requirements. Minimum number of injury-free man-hours needed to qualify is 1,000,000.

3. THE CERTIFICATE OF COMMENDATION is available only for injury-free records covering a period of one or more full calendar years and totaling 200,000 to 1,000,000 man-hours.

Details of eligibility requirements may be obtained by writing to the Statistics Division, National Safety Council.

AWARDS OF HONOR

ACF Industries Inc., Iron and Steel Products, Albuquerque (N.M.) plant.

American Brake Shoe, Steel Foundries, Electro Alloys Div., Elyria.

American Cyanamid Co., Lederle Laboratories Div., Pearl River, New York.

The Atlantic Refining Co., Research and Development, Philadelphia.

City of Austin Tex.

Cambell Red Lake Mines Ltd., Balmerton, Ont., Canada.

Canada Cement Co., Ltd., Hull, Quebec, Canada.

Chrysler Corp., Three Awards: Automobile, Indianapolis, Ind. Detroit Tank Plant, Centerline, Mich., Iron and Steel Products. Mopar & McKinstry Plant, Centerline, Mich.

Creole Petroleum Corp., Drilling, Caracas, Venezuela.

Davison Chemical Co., Division of W. R. Grace & Co., Curtiss Bay Works, Maryland.

Dow Chemical Co., Midland, Mich.

E. I. Du Pont De Nemours & Co., Four Awards: Savannah River Plant, Yerkes Plant Henry Clay, Del., Technical Laboratory, Deepwater Point, N. J., Graselli Works, Philadelphia.

Fitchburg & Leominster Street Railway.

Food Machinery & Chemical Corp., Canning Machinery Div., Hoopeston, Ill.

Ford Motor Co., Fifteen Awards: Assembly Plant, Chicago, Aircraft Engine Div., Chicago, Brooklyn Plant, Michigan, Dearborn (Mich.) Glass Plant, Dearborn (Mich.) Specialty Foundry, Dearborn (Mich.) Stamping Plant, Special Products Div., Sales Offices, U. S. Area, Mich., Wayne (Mich.) Plant, General Offices, Ypsilanti, Mich., Twin Cities, Assembly Plant, St. Paul, Minn., Kansas City (Mo.) Plant, Buffafflo (N.Y.) Stamping Plant, International Div., New York.

General Electric Co., Ontario (Calif.) Plant.

Jas. W. Glover Ltd., Honolulu, T. H.

Lago Oil & Transport Co., Ltd., Aruba Refinery, Aruba, Neth. Ant.

Lehigh Portland Cement Co., Oglesby, Ill.

Lockheed Aircraft Corp., Two Awards: Georgia Div., Marietta, Div.

Management Services Inc., Oak Ridge, Tenn.

Marquette Cement Co., Oglesby, Ill.

Monsanto Chemical Co., Lion Oil Co., El Dorado, Ark.

The National Cash Register, Dayton, Ohio.

New Orleans, P. S.

North American Aviation, Inc., Booketdyne Div., Los Angeles.

Northrop Aircraft, Inc., Two Awards: Hawthorne Calif., Anaheim Div., Hawthorne, Calif.

Pacific Electric Railway Co.

Pittsburgh Plate Glass Co., Works, Ford City, Pa.

St. Louis Public Service Co.

City Utilities of Springfield, Missouri, Gas Dept.

Sutherland Paper Co., Kalamazoo, Mich.

Texas Co., Frath Cycling Plant, Erath, Ia.

Tennessee Valley Authority.

United Aircraft Corp., Pratt & Whitney Div., Southington.

United States Rubber Co., Thirteen Awards: Los Angeles Tire Plant, Naugatuck (Conn.) Footwear Plant, Strak & Ried Mills, Ga., Kankakee Plant, Joliet, Ill., Ball Band Plant, Mishawaka, Ind., Providence (R. I.) Plant, Winnsboro (S. C.) Mills, Central Operations, Lynch, Ky.

U S S Co., Columbia Steel Co., Pittsburgh Works, California.

AWARDS OF MERIT

Allentown Cement Co., Conshohocken, Pa.

American Brake Shoe, American Manganese Steel, Oakland, Calif.

American Cyanamid Co., New York.

American Steel Foundries, Alliance Works, Ohio.

Arnold Engineering Development Center, Tullahoma, Tenn.

Associated Folding Box Co., Lawrence, Mass.

Atlantic Refining Co., Four Awards: Domestic Producing Department Southwest, Block 31, Denton & Neale Gasoline Plants, Pa., Marine Fleet, Fort Mifflin, Philadelphia, Philadelphia Refinery.

The Bartgis Co., Folding Cartons,

—To page 158

COMPARE ITS BIG SIZE

Magic Lens Tissue
SILICONE TREATED

The white space on this page is exactly the size of the Magic sheet; over 50% larger and our paper costs you less. It has twice the tearing strength. Loaded with sparkle-power, it polishes—and protects—as it cleans crystal-clear.

Compact Self-Mounting Dispenser has no moving parts. No drilling, No screws. Just stick it to the wall.

Magic Heavy-Duty Cleaning Station is for heavy grit areas or where anti-fog protection is needed. Magic Lens Cleaning & Anti-Fogging Fluid is pressure-packed. 1,400 applications per can. One Magic can equals 4 old-fashioned bottles. That's the first saving. No pump. Nothing to refill.

Indestructible Dispenser locks can in place. No pilferage possible. Releases each sheet of paper 1-by-1, not in bunches; greatly reducing waste.

Magic Heavy-Duty Paper, not silicone treated, is our superb wet-strength tissue. No scratching on plastic, and no lint. Again, you save money.

Ask to exchange Magic for your old cleaning stations FREE, or order anew—now! Wire or write us or your Safety Jobber today!

Compare the Quality, the Size and the Price and Buy.

Magic Lens Tissue, 6 refills	per carton, $8.40
Magic Lens Tissue Dispenser	each, $2.50
Magic Heavy-Duty Paper Dispenser	each, $5.95
Cleaning & Anti-Fogging Fluid, Twelve 12 oz. cans	per carton, $12.50
Magic Heavy-Duty Paper, 18 giant refills (760 sheets ea.),	per carton, $11.60

All prices F.O.B. shipping point

Exchange all your other Stations for Magic FREE

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America's leading
Eye-aid for
Safety.

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The Silicone Paper Company of America Inc. 75 E. 45th St., New York 17, N. Y.

WIRE FROM WASHINGTON

By Harry N. Rosenfield
Washington Counsel, National Safety Council

THE SECOND SESSION of the 84th Congress adjourned after having passed some 800 bills. At the time of its adjournment, various Congressional and administrative investigations of major marine and aviation accidents were under way.

Highway Safety. The House Special Subcommittee on Traffic Safety held public hearings. In testifying, Senator Douglas urged expansion of driver-training in schools, study of accident-prone individuals, encouragement of uniform state standards for licensing and license-revocation, and action, either private or governmental toward rectifying what he deemed to be the faulty design of automobiles. He also said that consideration should be given to whether there should be different standards for the use of interstate highways from those applicable to other roads.

At these same hearings, a member of the Maryland Traffic Safety Commission urged the Federal government to assume responsibility for traffic safety, and suggested creation of a government commission with power to act in this field. Congressman Blatnik testified that he believed the Federal Government should provide leadership and funds for a broad program of basic research "to find out what is causing traffic accidents."

The Committee plans to hold public hearings and have private conferences with various interested groups, including the National Safety Council, after the adjournment of Congress and prior to the convening of the new Congress.

The Bureau of Public Roads issued standards for construction of the national system of interstate and defense highways, the 41,000 mile system to be constructed in the next 13 to 15 years under the new highway construction act. The standards were formulated by the American Association of State Highway Officials, cooperating with the Bureau. The Secretary of Commerce said that these standards "call for incorporation of all known features of safety and utility."

The Interstate Commerce Commission reported on accidents in over-the-road interstate commerce for the first three months of 1956. The totals show an 11 per cent increase in accidents of common and contract motor carriers over 1955, although the number of fatal accidents dropped 7 per cent. The number of accidents reported by passenger carriers increased 20 per cent over the comparable 1955 period; fatal accidents involving busses were 29 per cent higher. Accidents involving trucks increased 10 per cent, but fatal accidents in this category dropped 9 per cent.

The President signed the trip-leasing bill, S. 898, into law, Public Law 957, affecting arrangements for trucks transporting agricultural commodities. (See WIRE, August 1956).

Industrial Safety. The President signed H. J. Res. 511 into law, Public Law 946, authorizing the Interstate Sanitation Commission of the states of New York, New Jersey and Connecticut, to make a study of the air pollution problem in their area.

A subcommittee of the House Select Committee on Small Business issued a report on Air Pollution Problems. It predicted that "in time it appears that (air pollution) will become a national problem." Among its recommendations are the following: (1) that state and local governments make full use of the Federal government's aid in air pollution control; (2) the Surgeon General of the United States Public Health Service "make independent findings of fact on the health damage of air pollution in order that medical conflicts can be resolved"; and (3) the National Bureau of Standards make tests and studies of air pollution control devices, particularly automobile exhaust and industrial control devices.

The Public Health Service issued new proposed regulations concerning water pollution control and invited comments from interested parties.

Aviation Safety. The Grand Canyon crash occupied the center of the safety stage within this area. A House subcommittee held hearings on airspace utilization and air safety, with special reference to this accident. A CAB six-man inquiry panel started public hearings on the cause of the accident. The House Committee on Government Operations filed a report on the "Federal Role in Aviation," condemning "lack of well defined authority and responsibility in aviation matters" and calling for a "drastic reorganization" of executive agencies in the field. It recommended granting additional funds to the President's Special Assistant on Aviation Planning in order to hasten completion of his study prior to September 1957, and acceleration of the five-year Federal airway plan.

The President asked Congress for an additional $68,000,000 for the CAA to speed up its air traffic safety program; Congress voted $45,000,000.

The safety aspects of increased air travel were pointed up by various executive officials. The

—To page 123

MEMO:
TO MANAGEMENT

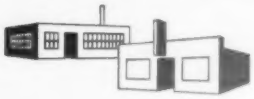
*Ordinary shoes are costing American industry millions of dollars in lost time injuries every year.

Why not stop this waste with a safety shoe program? You can now get maximum toe protection and comfort afforded by the new improved WINGUARDS in your safety shoes . . . ranging from the finest dress oxfords to heavy duty work boots.

SAFETY BOX TOE COMPANY
812 STATLER BUILDING
BOSTON

*SHOES WITHOUT SAFETY STEEL TOES

SMALL BUSINESS and ASSOCIATIONS



By A. M. Baltzer and Robert D. Currie

Small Business Program Staff, National Safety Council

New NSC Policies Encourage Association Activity

At a recent meeting the National Safety Council's Board of Directors approved several changes in the price policy for Council materials. Of particular interest to associations are these new policies:

1. **Redistribution of NSC materials encouraged.** Previously, the purpose of an Association Membership was to provide the association headquarters with safety information service. Associations were not permitted to redistribute posters or periodicals and other material to their members as a regular service. All restrictions on purchase and distribution of NSC materials by association members have now been lifted. Now associations can expand their safety activities through the use of Council materials. The purpose of this action is to encourage greater safety activity by trade groups, with particular intent of aiding the small firms.

2. **Non-member prices reduced.** Formerly, the non-member prices of most NSC materials for industry were double the member prices. The Board has approved a proposal to establish a single price list for all Council publications. One advantage of being a Council member is that all members will receive a 10 per cent discount.

Pending inauguration of the new single price list (scheduled for January 1, 1957) non-member organizations may purchase Council materials at the prices quoted in Service Guide 2.1F, the Federal Government price list, which average 15 per cent above member prices. Thus, even non-member associations may secure Council publications for little more than the regular membership prices.

The Council recommends that associations whose programs include safety activities enroll for the new Association Membership service which the Council offers. This membership not only provides a year round supply of safety literature to the association headquarters, but also enables the association to purchase additional materials for redistribution to members at member prices.

All association executives, whether or not they are members at present, are urged to write to the Council for a free copy of the Service Guide, *Occupational Safety Services.* This book contains descriptions and prices of all occupational safety materials available at the Council. With the reduced non-member price in effect, there is an opportunity to purchase safety materials, either for association headquarters use or for distribution to members, at moderate prices.

Hidden Danger!
DON'T play in old refrigerators or ice boxes because—
YOU CAN'T GET OUT
YOU CAN'T BE SEEN OR HEARD
YOU CAN'T BREATHE
DO tell your parents if you find one!

HERE'S COOPERATION! This campaign is to eliminate the abandoned refrigerator "death traps." Over 400,000 posters were distributed this year by the National Electrical Manufacturers Association and the National Safety Council.

AIG Offers Industrial Consulting Service

Industrial Safety Consulting Service was introduced this month by the Associated Industries of Georgia. The new Service is designed to make expert safety assistance available to small firms which have no safety directors. The new program is being spotlighted in key areas around the state through a series of safety sessions designed to stimulate the development of safety activity in small firms. This new service is offered free of charge to all establishments without regard to membership in AIG.

Florida Ice Industry Reduces Accidents

Here is the score reported by the Florida Ice Association as the result of the Association safety program aided by the Florida Industrial Commission:

- Accidents were cut in half.
- Lost time due to accidents reduced 80 per cent.
- Accident costs were cut 37 per cent.

Public Relations Are Good Manners

"Public relations are good manners to win friends," is a quote from *Public Relations for the Smaller Firm* by the University of Illinois Bureau of Business Management.

Question: "Isn't accident prevention synonymous with public relations?" Let's look a little.

More and more small firms—at least the progressive ones—realize that well planned public relations are good business. This may take the form of a company-sponsored athletic team, civic service by a company official, conducted plant tours for community groups, etc. Whatever it is, the little time, effort and money invested may be as valuable as an elaborate advertising or sales campaign.

Such effective public relations programs are not the exclusive privilege of large companies with public relation specialists; successful small business men use these ideas every day.

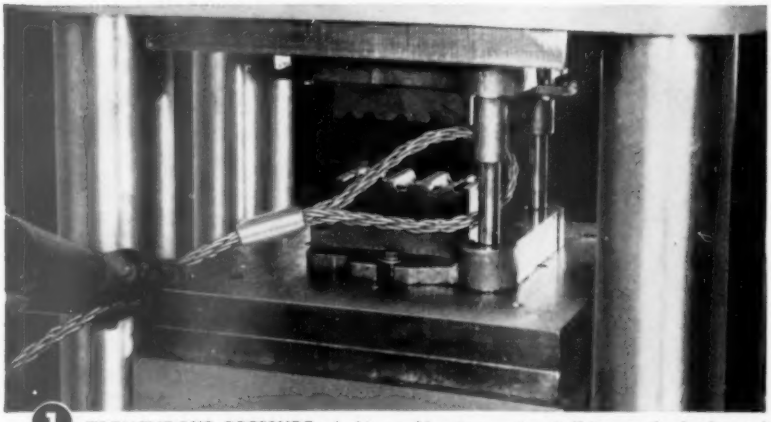
Likewise, planned safety activities are good business. Some-

—*To page 124*

Tuffy® SLING NEWS

Vol. 1 — Published Monthly in Leading American Trade Magazines by Union Wire Rope Corp. — No. 2

NEW Tuffy® FERRULE GIVES EYE SPLICE STRENGTH OF Tuffy® SLING FABRIC



1 **TREMENDOUS PRESSURE** of this machine in swaging Tuffy's smooth-edged metal ferrule around the tuck splice virtually flows the metal into the braided fabric interstices.

No Increase in Cost For Smoother, Safer Factory Ferrule Splice

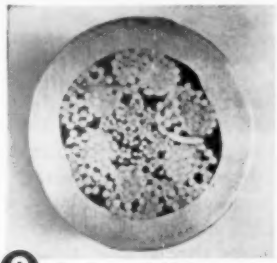
In the most important sling development since Tuffy machine braided wire was introduced, Tuffy now offers sling users greater safety, faster sling handling, and more sling-eye strength—at no increase in price.

It's all made possible by a new steel ferrule used on all Tuffy Slings. This ferrule, slipped over the splice of the eye and pressed on under great pressure, holds so tight that it gives the eye of the sling 100 per cent of the strength of the machine braided wire fabric. The tucked-in splice is completely covered—the swaged ends of the ferrule leave no abrupt edges to catch on loads or to injure workers' hands.

Teamed up with the Tuffy machine braided sling fabric, this new ferrule makes Tuffy the sling handler's favorite for every job.

Good Man To Know— Your Tuffy Distributor

Tell him your requirements. Then let him save you the time, trouble, and money of carrying an inventory. He will stock the Tuffy Slings you want and Tuffy Hoist Lines to team up with your Tuffy Slings.



2 The force of friction set up by compressing the ferrule metal on more of the wire fabric surface forms an eye that really stays spliced.

New Tuffy Sling Handbook FREE — Mail Coupon Now

This big 60-page book tells you all about new factory-fitted Tuffy Slings with our pressed-on ferrule and contains complete information about a full line of factory-fitted Tuffy Slings, nearly a dozen new standard fittings, and complete data and charts on all Tuffy Slings. It also has a brand-new engineer's notebook and a valuable rigger's manual. Send for your copy now. No obligation.

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Death Takes Sidney Williams, Dean of Traffic Engineers

SIDNEY J. WILLIAMS, 70, dean of the traffic safety movement in the United States, died August 5 in Evanston, Ill., hospital.

Death resulted from a cerebral hemorrhage complicated by pneumonia. He had entered the hospital a week before after several months of failing health.

He lived at 2501 McDaniel Ave., Evanston. He is survived by his widow, Margaret, at that address, and two daughters, Mrs. Frank W. Puller, of Albuquerque, N. M., and Dorothy Ann, a teacher at The Principia, Elsah, Ill.

Services were held in Milwaukee August 8.

Mr. Williams actively directed the National Safety Council's traffic safety work from its inception in 1924 until his semi-retirement in 1950. Since 1945 he had been assistant to the president of the Council.

As a recognized national authority on traffic safety, he won three major honorary awards for his services in the conservation of human life. He had been an advisor to Presidents of the United States, to Congress, and to federal agencies on safety matters. He wrote several books and articles on safety and lectured widely to the public and to professional groups at universities. He worked tirelessly behind the scenes on many committees, professional societies and code associations.

Mr. Williams was born May 12, 1886, in Milwaukee. He received two degrees from the University of Wisconsin and became chief engineer of the Wisconsin Industrial Commission. In 1918, he joined the National Safety Council as chief engineer, and took charge of the Council's traffic safety program when it was launched in 1924.

He served as safety director for the Federal Civil Works Administration, and as White House consultant on safety programs for federal employees. He took an active part in the early National Conferences on Street and Highway Safety, and the several President's Highway Safety Conferences.

In 1947, Mr. Williams was chairman of the Safety and Industrial Health Advisory Board, U. S. Atomic Energy Commission, and he continued as safety consultant to the AEC. He was chairman of

SIDNEY J. WILLIAMS
1886-1956

the National Committee on Uniform Traffic Laws and Ordinances and was a leader in working for the enactment of uniform traffic laws throughout the nation. He was a charter member of the Institute of Traffic Engineers. He was active on various code committees of the Society of Automotive Engineers, the Highway Research Board, and other bodies.

Mr. Williams received the C.I.T. Foundation grand award in 1938 for the greatest contribution to public safety; the Beecroft Memorial Lecturer award in 1950, and the Arthur Williams Memorial Award in 1954.

He was active in community affairs and was chairman of the board of trustees of the First Congregational Church in Evanston. He also represented that denomination on the Evanston Council of Churches.

GEORGE W. LASCHER

GEORGE W. LASCHER, 47, Pittsburgh District sales manager for Mine Safety Appliances Company, Pittsburgh, died August 1, at Somers Point, N. J., where he was vacationing.

Mr. Lascher, a native of Pittsburgh, had been with MSA since 1942. He was a member of the American Society of Safety Engineers, Veterans of Safety, and Allegheny Lodge 223, F. and A. M. He leaves a daughter, two brothers and a sister. His wife died March 16.

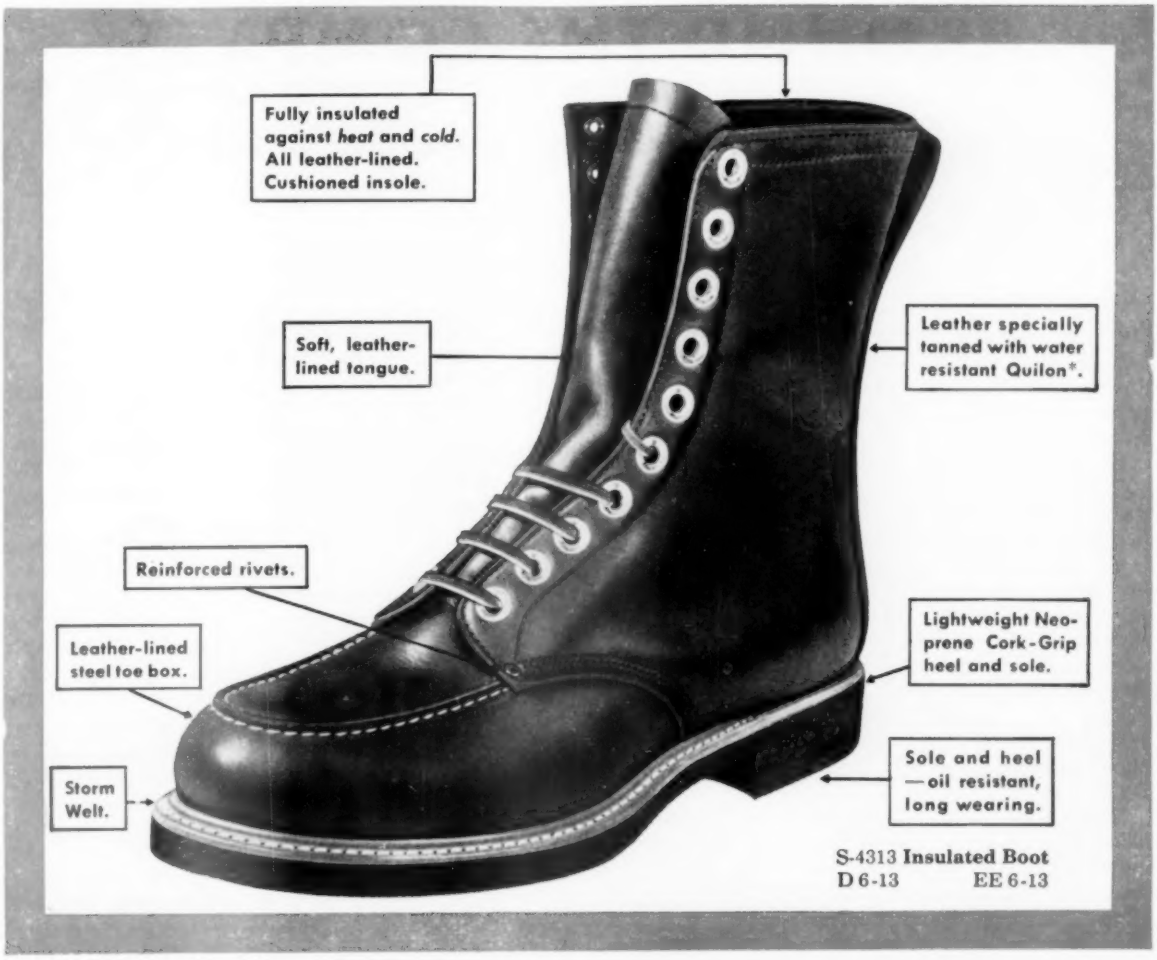
Bureau of Standards To Be Relocated

A tract of approximately 550 acres of land near Gaithersburg, Md., has been selected for relocation of the Washington laboratories of the National Bureau of Standards. The move will permit the Bureau to plan new buildings to replace present research facilities, which over the past 50 years have become inadequate.

Plans for the site have been given to the National Capital Planning Commission and to the Regional Planning Council, and it is expected that these groups will work with the Bureau in utilizing the land. The General Services Administration will participate in planning and will supervise construction. Transfer of operations to the new location is expected to be completed in about five years.

The Bureau occupied its present site on Connecticut Avenue in Washington in 1903. Since that time its responsibilities have greatly increased, largely as a result of the rapid expansion of technology and the growth of scientific research.

It is expected that the new location will make possible a more modern research operation in structures that can be very efficiently managed. In addition, the new site will provide the benefits of a rural location where scientific programs can be undertaken without interfering in community life and without urban interference to important Bureau projects. The rural location will remove the work from mechanical, electrical, and atmospheric disturbances present in a city.


Fully insulated against *heat* and *cold*. All leather-lined. Cushioned insole.
Soft, leather-lined tongue.
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Sole and heel —oil resistant, long wearing.
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Eight reasons why your men will want Thom McAn's new Safety Boot

FROM the sturdy sole to the nine-inch top, this new double-purpose boot is jam-packed with features that outdoor *and* indoor workers welcome. It is all leather-lined and fully insulated throughout against *heat* and *cold*.

The leather, specially tanned with Quilon*, a du Pont chemical, gives excellent protection against water, most strong acids and alkalis. The neoprene Cork-Grip sole and heel are light, oil-resistant and long wearing. Reinforced rivets for extra strength, cushioned insole for all day comfort, and leather-lined steel toe boxes make this safety boot an outstanding value.

We believe your men will take to this practical, storm-welted moccasin style boot.

NOW SOLD THREE WAYS: 1. Directly from Thom McAn warehouses for plant inventory, or on mail-order basis. **2.** Through Thom McAn's special In-Plant Fitting Plan. **3.** At Thom McAn Shoe Stores. Send today for details on Thom McAn's special money-saving plans—plus a full description of the new Thom McAn Safety Shoe line. Write: Thom McAn Safety Division, 25 West 43rd Street, New York 36, N. Y.

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SAFETY SHOES
A Division of the Melville Shoe Corporation

AROUND THE COMPASS

ACTIVITIES • PROGRAMS • EVENTS

By Phil Streit

Field Service Department, NSC

Pattern for Progresss

A new program will be launched this fall in Cleveland, Ohio, designed to provide Cleveland industry with additional tools to reduce injuries.

Called "Pattern for Progress," the program is designed to furnish for all companies, in simplified form, the basic accident prevention techniques which have been effective in large companies throughout the United States. In addition, it will provide a specific one-year safety program for all industries, including posters, streamers, hand-out material, and monthly safety meeting guides for foremen.

"Pattern for Progress" has been developed out of the efforts of an industrial program development committee consisting of representatives from Cleveland management, the Industrial Commission of Ohio, and Cleveland and Ohio safety councils.

Hatcher to Twin Cities

Harry Hatcher, manager of the Omaha Safety Council for the last three years, assumed his new duties August 15 as director of the Twin Cities Area Safety Council, St. Joseph, Mich. He is a graduate of Creighton University, Department of Journalism, and had considerable radio and newspaper experience prior to joining the Industry Safety Contest.

California Contest Passes 400 Mark

Max A. Koffman, Industrial Safety vice-president of the Greater Los Angeles Chapter, NSC, recently announced that 409 Southern California companies are now enrolled in the Business and Industry Safety Council.

The annual competition is the largest regional safety contest in the world. Participating companies, he said, represent 561,000 employees with a monthly total of approximately 90 million manhours.

Latest monthly tabulation of contest statistics, Mr. Koffman said, shows one out of every three participants with a perfect no-accident record.

Although more companies have entered, broadening the range of the contest, the present over-all frequency rate of all participants is 6.04 compared to 6.06 for the same period in 1955.

Safety Patrol Boys Receive Rewards

Safety patrol boys from all public, parochial, and private schools in the New Orleans area were guests recently of the American Legion at a baseball game in Pelican Stadium. The boys received their annual awards from the Metropolitan New Orleans Safety Council in special pre-game ceremonies.

Each boy serving his first year on the school patrol was given a bronze pin. Those completing their second year were given silver pins, and three-year members were awarded gold pins. The service pins were provided through a special grant made to the safety council by a local department store.

Foremen's Safety School

A foremen's safety school is being sponsored by the Seattle-King County Safety Council in Seattle, Wash. First class of the well-attended sessions was held June 4th in the Public Safety Building. The continuing series of classes are being held on Monday and Wednesday evenings for two hours. Course instructors include top leaders in industrial safety in the area.

Trucks Blessed In Safety Drive

Some 10,000 persons attended the ceremonies at the outdoor Catholic Lasalette Shrine in Infield Center, N. H., as nearly 200 trucks from New Hampshire and Vermont were blessed.

The shrine director, Father Bedard, said the plan was designed as a move to a better realization by truck owners of the safety requirements on today's heavily traveled highways.

Motor vehicle and other state officials in New Hampshire and Vermont lauded the ceremony as a valuable contribution to highway safety.

Contest Progress Reported

Significant progress in accident prevention among manufacturing firms in the New Orleans area was reported by Arthur J. Naquin, director of the Metropolitan New Orleans Safety Council's Industrial Division, following analysis of the 10-month records of participants in the Safety Council's current annual industrial safety contest.

Nine firms in the manufacturing division have completed the period without a single disabling injury, Mr. Naquin reported. Eight other firms in various divisions also have perfect "no accident" records for the 10-month period.

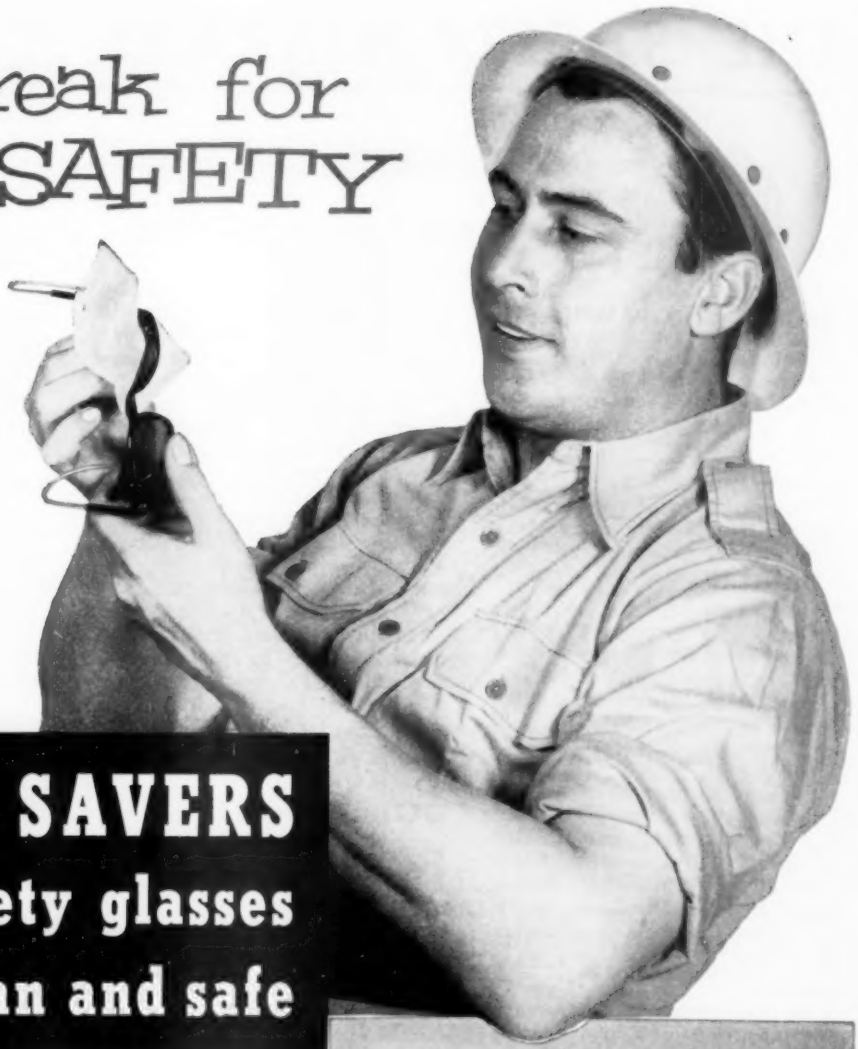
Keep Wisconsin Safe, Clean, Beautiful

The paper industry in the state of Wisconsin is sponsoring a campaign on the theme, "Keep Wisconsin Safe, Clean and Beautiful."

Citizens are being asked to drive carefully and to refrain from litter-bug practices so that the natural beauty of the country-

—To page 114

Best break for EYE SAFETY



SIGHT SAVERS keep safety glasses clean and safe

Cleaning Stations (value $2.50 ea.) **FREE** with your purchase of SIGHT SAVER tissues.

SIGHT SAVERS are the silicone-treated tissues known and preferred by millions as the easiest, most efficient way to clean and polish eyeglasses. Put **SIGHT SAVERS** at everybody's fingertips — they wipe away the best excuse ever given for not wearing safety glasses... improve morale and efficiency.

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FREE for your personal use—handy Dispenser Pak containing 200 large 3 x 6" SIGHT SAVERS — Write Dept. 8009.

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THE SAFETY LIBRARY

Books, pamphlets and periodicals of interest to safety men

Compiled by Ruth Parks, Librarian, NSC

BOOKS AND PAMPHLETS

Aeronautics

Aircraft Fueling. Flight Safety Foundation, 468 Fourth Ave., New York 16. 1956, 48p. Sample copy free.

Chemicals

Sodium, Its Manufacture, Properties and Use. Marshall Sittig. Reinhold Publishing Corp., New York. 1956, 529p. $12.50.

Mines

Influence of Atmospheric Moisture On Ignition of Fire Damp by Explosives. U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. 1956, 10p. Report of Investigations 5224. Free.

Potential Ignition Hazards Associated with Compressed-Air Blasting Using a Compressor Underground. U. S. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa. 1956, 33p. Report of Investigation 5223. Free.

Radiation

The Biological Effects of Atomic Radiation, National Research Council, Washington, D. C. 1956, 108p.

MAGAZINE ARTICLES

Chemical Industry

"Safety Factors-How Far Do You Go In Designing Them Into the Plant." *Industrial and Engineering Chemistry.* July 1956, 36A-39A.

Foremen

"Safety-Getting your Workers into the Act." *Supervisory Management.* July 1956, P.17-21.

Gas Industry

"Accident Frequency Rate down in '55." *American Gas Association Monthly.* July-August 1956, P.18.

Hands

"A Social and Occupational Study of Injured Hands. Rutt Wilkes. *British Journal of Industrial Medicine.* April 1956, P.119-130.

Health

"Aluminum Powder Inhalations in the Treatment of Silicosis of Pottery Workers and Pneumoconiosis of Coal-Miners." M.C.S. Kennedy. *British Journal of Industrial Medicine.* April 1956, P.85-101.

"Death Rate of Miners and Ex-Miners With and Without Coalworkers' Pneumoconiosis in South Wales." R. G. Carpenter and others. *British Journal of Industrial Medicine.* April 1956, P.574-577.

"How Much Companies Pay for Medical Services." Doris M. Thompson. *Industrial Medicine and Surgery.* July 1956, P.317-322.

"Improved Communication — Hygenic Standards for Daily Inhalation." Henry Fall Smyth. *Industrial Hygene Quarterly.* June 1956, P129-185.

"A Study of the Effects on the Lungs of Industrial Exposure to Zirconiune Dust." C. E. Reed. *AMA Archives of Industrial Health.* June 1956, P.578-592.

"Toxicity of Ozone." Sidney Mittler and others. *Industrial Medicine and Surgery.* June 1956, P.301-306.

"Two cases of Meta-dinitrobenzene Poisoning with Unequal Response." Tikomil Beritic. British *Journal of Industrial Medicine.* April 1956, P.114-118.

Hospitals

"Work Injury Rates in Hospitals, 1953." *Monthly Labor Review.* June 1956, P.684-687.

Mines

"Ventilation and Dust Control with Continuous Miners." J. A. Hagy. *Coal Age.* July 1956, P.56.

Workmen's Compensation

"Occupational Hearing Loss—Wisconsin's Approach to the Problem." Meyer S. Fox. *Industrial Medicine and Surgery.* July 1956, P.310-316.

Safety After Dark is Theme For Operation Safety

This is the season when fading daylight, heavy home-from-work traffic and fatigued or impatient drivers anxious to return to their families combine to increase traffic dangers for both the driver and pedestrian.

In the fall and early winter season more traffic fatalities result from accidents occurring between 4 and 7 p.m. than during any other time of the day. Your off-the-job traffic safety program should be stepped up at this time of the year to help prevent costly traffic accidents involving your employees.

As an aid to your October program, *Operation Safety* devotes its entire kit of program and publicity aids to the subject "Safety After Dark." Tips for safe walking and driving at night are worked into sample news releases, an editorial, radio scripts and jingles. A leaflet dealing with the concept of courtesy toward other drivers at night is included in the kit. The leaflet advises drivers that, "it's smart to be the *first man* — to dim your headlights."

Featured posters for the month include a simple direct message to motorists to "Drive Right—Slow Down at Night," in the C and A size and a pedestrian poster in the B size reminding walkers to, "Stay Alert! Walking is more dangerous at night."

The C dimensions are 25 x 38 in., suitable for outdoor sites such as parking lots, driveways approaching the plant and at exit gates. The A poster, a duplicate of the C poster, is 8½ x 11½ in., suitable for bulletin boards. The pedestrian B poster is 17 x 23 in. and can be used wherever it is most effective.

Descriptive material and order forms for other program aids such as films and mats, available through the National Safety Council, are also included in the kit. For further information on *Operation Safety* write the National Safety Council, 425 North Michigan Avenue, Chicago 11.

Only one pair of *EYES* to each of us *Guard them!*

STONEHOUSE SIGNS
For Accident Prevention

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1017—49

1301—12

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SIGHT is a gift to be treasured. Yet carelessness often robs workers of this, their precious possession.

Impress upon your employees the vital importance of protecting their eyes. Wearing goggles is one very good way. Keep telling them—with the right signs, either stock or special worded.

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Write for our complete Catalog— 64 pages, in full color. It's free.

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"Signs Since 1863"

ACCIDENT PREVENTION • *steel* SIGNS IN STANDARD COLORS AND DESIGNS

SAFETY OFF THE JOB

Suggestions for company and community programs

By GRANT O. SHIBLEY

NSC Staff Representative, OTJ Safety Committee

WORKERS suffer more accidental deaths and injuries off the job than they do on the job. In 1955, nearly seven out of ten deaths, and more than half of the injuries occurred off the job. Off-the-job deaths occurred principally in motor-vehicle accidents; off the job injuries principally in home accidents.

Off-the-job deaths and injuries cause loss of production time also, and generally these losses exceed those from work accidents. In 1955, workers injured off the job lost a total of 65,000,000 man-days compared with 45,000,000 man-days lost by workers injured on the job.

The various sections of the Industrial Conference recognize the seriousness of the problem, 16 of them having active Off-The-Job Committees.

The 1956 National Safety Congress will offer a number of programs throughout the week to aid those interested in off-the-job accident prevention. We are listing some of special interest, Monday through Friday, October 22-26:

MONDAY AFTERNOON—Morrison Hotel

Off the Job Safety—Is It an Industrial Responsibility?—A debate.

Discussion leader: Thomas J. Berk, safety consultant, Metropolitan Life Insurance Co., New York.

Affirmative: W. F. Leonard, Jr., vice-president, The Southland Corp., Dallas; George R. Meyers, director of safety, Blatz Brewing Co., Milwaukee.

Negative: E. G. Hutzley, safety and fire prevention engineer, Campbell Soup Co., Camden, N. J.

MONDAY EVENING—Conrad Hilton

Protecting Our Children—A symposium: (1) Psychological Aspects of Child Safety. Burton G. Andreas, assistant professor of psychology, University of Rochester; (2) Firearms Safety for the Home. James H. Carnahan, director first aid and water safety, Chicago Chapter, American Red Cross; (3) Accidental Poisoning in Children: Scope of the Problems. Dr. Joseph R. Christian, associate professor, Pediatrics, Stritch School of Medicine, Loyola University, Chicago; (4) Accidental Poisoning in Children: Control Measures. Dr. W. H. Tucker, public health director, Evanston Dept. of Health, Evanston, Ill.; (5) General Discussion.

TUESDAY AFTERNOON—Congress Hotel

Safety Begins At Home. May M. Roach, associate director of rural education, Central State College, Stevens Point, Wis.

And They Still Get Hurt. Frederick H. Deeg, National Association of Mutual Casualty Cos., Chicago.

General Discussion.

TUESDAY EVENING—Conrad Hilton

Soundslide Films:

Take Another Look. Employee takes his family to a circus and comparisons are developed between his job hazards and circus acts.

The Case of the Misguided Killer. Stresses safe driving habits and need for awareness of hazards.

Small Craft Safety. Demonstrates safe handling of small boats and emergency techniques when an accident occurs.

WEDNESDAY MORNING—La Salle Hotel

Why Seat Belts? A graphic portrayal of a study of some 130 fatal accidents. Frank A. Jessup, superintendent, Indiana State Police, Indianapolis.

The Development of Auto Seat Belts. Technical aspects of research in layman's language leading to the development of auto seat belts, including experiments and tests carried on at Cornell Aeronautical Laboratory, Buffalo, N. Y.

Their Effectiveness—A lecture-demonstration. Slides and miniature automobiles are used to illustrate the effectiveness of auto seat safety belts. Holley P. Bradley, safety supervisor, Service Pipe Line Co., Tulsa.

WEDNESDAY MORNING—Morrison Hotel

Plant Safety Through Visuals: (1) Teaching Safety Through Visual Aids. John Behrens, University of Illinois; (2) Water safety. Colored slides. Ted Ingerson, Mansfield, Mo.; (3) Our Influence in the Community, FFA Chapter, Kindmundy, Ill. (4) Do You Know? Wade Thomas, Kaiser Aluminum & Chemical Corp., Ripley, W. Va.

WEDNESDAY AFTERNOON—Conrad Hilton

Home Safety Ideas That Worked: The Scope of the Problem—A symposium: (1) Experimenting With Off-The-Job Safety Programs. Paul L. White, director, Community Home Safety Program, Department of Health of Mansfield & Richland County, Mansfield, Ohio; (2) The Community Project of Round Rock. E. C. Nelson, sanitarian, Housing & Home Safety Section, Texas Dept. of Health, Austin, Tex.; (3) How One Community Attacked Its Home Accident Problem. Nettie Day, health education consultant, Accident Prevention Section, North Carolina State Board of Health, Raleigh, N. C.; (4) Application of Human Engineering Data to Home Safety. Alfred L. Moseley, consulting psychologist, Institute for Safer Living, American Mutual Liability Insurance Co., Boston; (5) General Discussion.

THURSDAY MORNING—Conrad Hilton

Home Safety Ideas That Worked: Publicity, Promotion, Special Program Activities—A symposium: (1) Publicity, Various Media. J. Charles Judge, chief, Home Accident Prevention Unit, Maryland Dept. of Health, Baltimore; (2) Saskatchewan Child Safety Day. Mrs. Lynn Hamilton, Health Education Division, Province of Saskatchewan Dept. of Public Health, Regina; (3) Fire Screen Project. H. C. Steed, Jr., director, Home Safety Unit, Georgia Dept. of Public Health, Atlanta. (4) Milady's Easter Bonnet With All the Hazards On It. Mrs. Sally Rankin, director, Home Division, Louisville Safety Council; (5) General discussion.

Discussion Leader: Dale Harman.

THURSDAY AFTERNOON—Conrad Hilton

Off-The-Job Safety: Petroleum Section—A panel discussion.

Discussion leader: S. Ross Carr, coordinator, safety & training, Gulf Oil Corp., Houston, Tex.

Participants: J. E. Engle, supervisor of safety, Whiting Refinery, Standard Oil Co. of Indiana, Whiting, Ind.; R. P. Hamilton, superintendent of safety, St. Louis-San Francisco Railway Co., St. Louis; J. C. Methner, safety supervisor, Sabine River Works, E. I. du Pont de Nemours & Co., Orange, Tex.; Gordon T. O'Neill, staff representative, Off-The-Job Safety Committee, Industrial Conference, National Safety Council.

FRIDAY MORNING—Conrad Hilton

Vitamins From Off-The-Job Safety Programs—A panel discussion.

Presiding: E. P. Marconi, manager, Safety Branch, Aro, Inc., Tullahoma, Tenn.

Participants: Arthur F. Tyra, head, Safety Division, Industrial Relations Dept., Union Carbide and Carbon Corp., Cleveland; Richard Wilkins, chief safety engineer, North American Aviation, Inc., Los Angeles.

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FOR WORKERS'

- Safety
- Health
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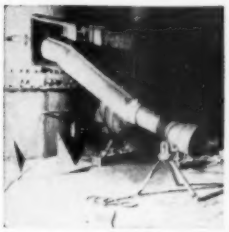
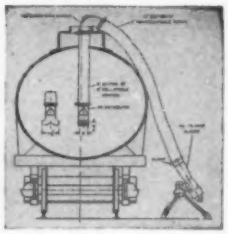
VANO® Design "A" VENTILATOR

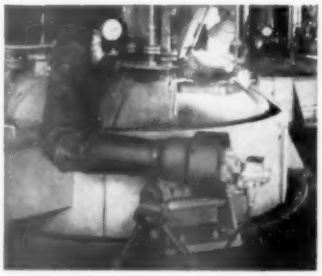
Vano Design "A" cooling interior of furnace, supplying fresh air through 10 feet of "Ventube" to provide safety and comfort during repair work.



Vano Design "A" delivering fresh air to cable manhole, expelling sewer gas, making entrance safe in a few minutes.

Vano Design "A" Ventilator plus a few accessories feeds large air volume into tank car, driving out fumes, stagnant or hot air for workers' safety and comfort.



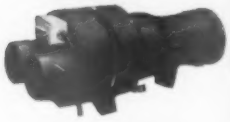


Vano Design "A" supplying fresh air in Reactor Room of Synthetic Rubber Plant.

Vano Design "A" Ventilator supplying fresh air to men working in wing compartments, fuselages, etc.

Powered by a ½hp motor, and equipped with the exclusive Coppus axial-flow propeller-type fan, this general-purpose blower delivers 1500 CFM of fresh air. It supplies ventilation for tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments and fuselages, and other confined places. Weighs only 103 lbs. Uses 8"-diameter flexible canvas tubing ("Ventube").

VANO DESIGN "C"



VENTILATOR-EXHAUSTER

Vano Design "C" equipped with 8" discharge tubing removing welding fumes.

Vano Design "C" equipped with two suction lines removing welding fumes for operators' safety.

For withdrawing welding fumes from confined places or directly from the welding rod ...or for expelling fumes or hot air from enclosed vessels. You can get it with 8" suction inlet for 8" non-collapsible tubing ...or with multiple inlet nozzles for 5", 4" or 3" suction hose. The discharge outlet takes 8" "Ventube". Powered by a ½ hp motor, it weighs only 85 lbs.

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- ☐ in tanks, tank cars, drums, etc.
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- ☐ on coke ovens.
- ☐ on steam-heated rubber processes.
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- ☐ around cracking stills.
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Remote Control Crane Aids Safety and Economy

REMOTE CONTROL of this five-ton hoist is provided through two reels, one on each side of the crane. A four-in. "I" beam was mounted under the outrigger where a small trolley is used to allow for movement of the push button station.

BETTER MATERIALS handling shares the spotlight and credit with increased operator safety for this highly successful operation. Executives were faced with a two-pronged problem of cost reduction and handling of traditionally tough, heavy and sometimes hazardous jobs. Here are the results of the program that keeps heavy-gauge steel flowing through the shop with a minimum of trouble and expense.

Problem. Materials handling costs in this East Coast steel warehouse were high, too high for comfort. They would be higher yet through the contemplated purchase of an expensive cab crane. Something had to be done to cut operating costs on these operations without sacrifice to operator safety.

Lack of definite aisles and other general floor conditions required the operator to stay away from the load when in motion. Safe movement of heavy-duty angle iron by their top-running trolley crane, as a consequence, was time consuming.

Solution. Due to cost considerations, management of the steel warehouse decided not to purchase a new cab crane. Instead, engineers of the Wright Hoist Division, American Chain & Cable Company, Inc., York, Pa., manufacturers of the trolley crane, were consulted and called upon to solve the difficulties. Remote control of the Wright five-ton crane, which provided many added safety features for the operator, was suggested. In addition, conversion costs were also much lower.

A unique method of suspending the push button station control from the outrigger channel, independent of the trolley, was designed. The desired effect was accomplished through two reels, one on each side of the crane.

In addition, a 4-in. "I" beam was mounted under the outrigger where a small trolley is used to allow for movement of the push button station. For spans of 35 ft. or more in length, a reversed catenary curve can be built into the "I" beam to compensate for the pull of the cable reels. This allows the push button station to remain where the operator leaves it and not be pulled to the center of the span.

Results. Operator safety records have increased many-fold since installation of this remotely controlled push-button station. It is ideally suited for the requirements of the steel warehouse where extremely fast speeds are not required. Accidents have been practically eliminated. It has improved operation and productivity of the crane by at least 50 per cent.

Next Step: Fully Automatic Fire Safety

FIRE-FIGHTING automation can be built into modern factories, says the Civil Defense and Fire Services Officer of one of Great Britain's largest industries.

J. H. Hutchinson of Imperial Chemical Industries Ltd., Billingham on Tees, told the 60th annual meeting of the National Fire Protection Association that the problem of preventing or halting accidental fires arising from the human element in industry must continue to be solved largely by education in safe mental attitudes —and by personnel training for fighting fires that do start.

But, if such accidental fires may thus be eliminated through training in fire-consciousness, he said, "It is safe to assume that automation can be left to deal with the rest of industrial fires."

Mr. Hutchinson pointed out that fire-prevention engineering begins at the drawing board stage in Imperial Chemical Industries' factories, and ultimately includes employee-training in extinguishing fires that do start. As a result, actual fire losses in a plant employing 15,000 averaged only $2 per worker during the years 1945-1954.

In a modern factory where "a machine has replaced a man, the man is not available for fire-fighting," Mr. Hutchinson commented. The question then arises, "Can the machine do the job for him?"

Jumping at conclusions is not nearly as good mental exercise as digging for facts.

AIR CYLINDERS of many kinds are made by Schrader. One type is shown above and in the photo below. Here, used to exert a ton of force, the cylinder bends rods easily into shape. Schrader makes air products to fit needs of almost any operation. A few of them are indicated here in red (numbers 1 through 3).

How Schrader Air Products help make

4 times as many burner grills per hour

Bending metal rods for kerosene burner grills requires a ton of force at Barridon Oil Burner Corporation in Hartford, Connecticut. Before air was adapted to the job, only 150 pieces per hour could be produced. Now, with the help of Schrader Air Products, 620 pieces are produced every 60 minutes.

This kind of production help is typical of operations automated with Schrader Air Products. Every day, new ways of using air for automatic operations are being planned, tested, and integrated in many different kinds of manufacturing plants. Economy, efficiency, and safety are basic with air, and in many cases air has made the difference between profit and loss.

Schrader engineering facilities are available to help you. Upon request, Schrader engineers will assist in planning for the most efficient use of air in your plant. Outline your problem to us and we'll give you prompt help. Right now—send for the latest informative booklets which show Schrader Air Products that can increase production, at low cost.

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FIRST NAME IN THE USE OF AIR
FOR INDUSTRIAL PRODUCTION AND CONTROL

SAMMY SAFETY'S NOTEBOOK

By Arthur S. Kelly

Industrial Department, NSC

Rope Containers

If handling coils of rope is a problem in your plant, you'll be interested in this idea. The metal cans are equipped with casters for easy maneuvering and with holes for ventilation. The four coils shown at left of photo illustrate the various sizes of coils and container bases and have not yet had the shells welded on.

Submitted by Bethlehem Steel Company, Sparrows Point Plant.

Safer Drum Handling

Here is a simple but effective solution to a problem prevalent in any plant having to move and store material packaged in drums. This "safety frame" can be used with metal and fiber drums and fiber tubes.

It insures load stability and reduces handling, with the usual economies and minimized exposure to hazards. This idea was developed in the Springfield, Mass., Plastics Division Plant of Monsanto Chemical.

The idea was submitted by George L. Gorbell, manager, Safety and Fire Protection.

Man-hole Cover Lifter

Without question, man-hole covers are heavy and awkward to lift. The lifter shown here is made from angle iron mounted on a four-wheel carriage.

The cover plate is lifted by means of two small hook chains

fastened to a long threaded eye bolt and a threaded hand wheel.

The lifter was designed by Thomas McDermott, working supervisor, Pipe Shop, Crucible Steel Company of America, Harrison, N. J. Submitted by George W. Foxhill, supervisor, Safety and Suggestions, for the company.

August Winner

August's winner was G. Stuart Mansfield, director of safety Western Printing and Lithographing Company, Poughkeepsie, N. Y., for a metal strap holder.

We are pleased this month to show three ideas and are indeed grateful to the people who sent them in. For a look at the awards this department is offering, see page 32 of last month's NEWS.

the Industrial sole with the
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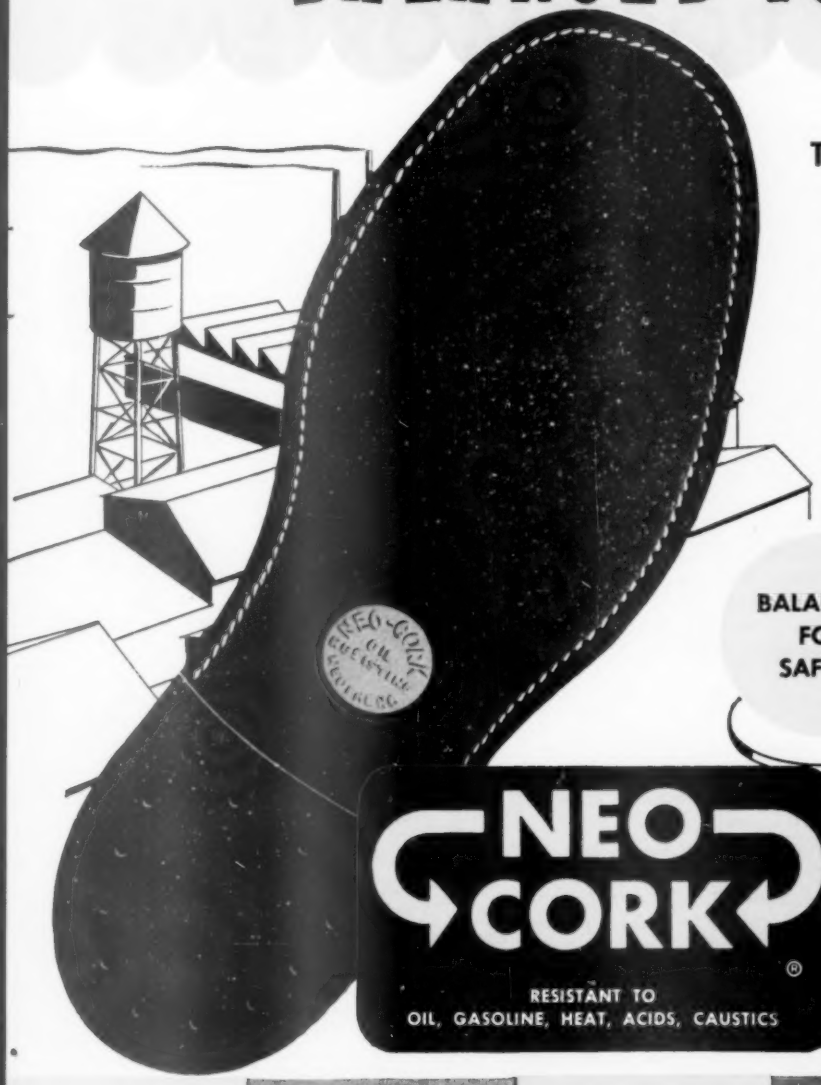

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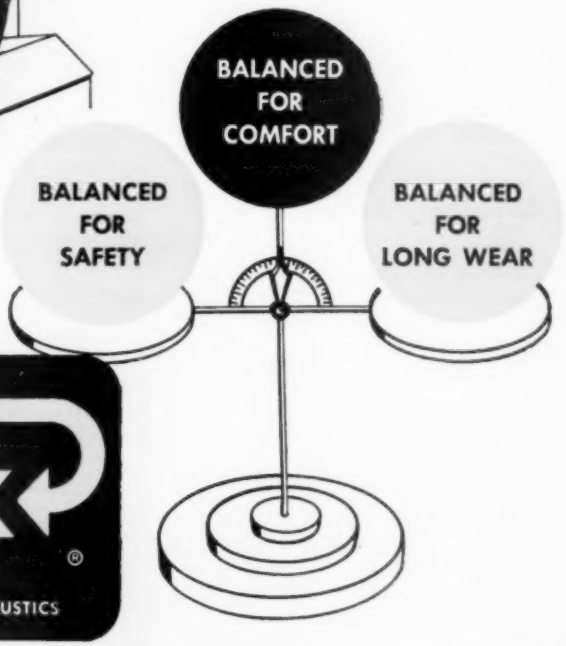
- aircraft maintenance
- paper & pulp industry



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What caused that accident?

What would have prevented it?

ACCIDENT POST-MORTEMS

A review of cases by Franklin G. Pater, *Industrial Department, NSC*

WE NEED your help. Our file of accident cases is limited. You can help us by sending details of accidents that have occurred in your organization. Descriptions should include:

1. Complete description of accident.
2. All circumstances—mechanical and environmental — surrounding the accident.
3. Photos and/or drawings, if available.
4. Findings of the investigation.
5. Conclusions.
6. Action taken.

Disciplinary Action

Description. An employee attempted to clear a jammed conveyor without stopping the equipment—a violation of plant safety rules. His left hand was caught between the chain and sprocket of the conveyor drive. When he tried to free himself, his right hand also was caught and severely lacerated.

Investigation and Correction. A guard has since been installed on the chain sprocket. A notice has been posted pointing out the importance of stopping the conveyor to clear jams and announcing that violators will be disciplined.

Comment. Evidently the management did not see the necessity for installing a guard until after this accident occurred. At the same time it noticed that employees did not follow safety instructions. As a result of one worker's violation, employees are threatened with "disciplinary" action and precautions have been taken to prevent "unsafe acts" by employees in the future.

Management should go several steps further to prevent a recurrence. Perhaps the process or handling methods could be engineered so that the conveyor would not jam or so that it would stop automatically in the event of a jam.

It looks like a one-way street when management can threaten disciplinary action and just say, "I'm sorry," when it fails to fully protect employees from mechanical "oversights" by forgetting to install guards and other protective devices.

When you are confronted with a similar situation—where management has been "negligent" along with the employee who did not "follow instructions" — how would you suggest handling it?

Another Barn Door Locked

Description. The employee was working with a paper sheeter crew, pulling trimmings from the sheeter to put in the hydra-pulper. As he reached up to pull some heavy trimmings from the sheeter at the point where two draw rolls (one metal, one rubber) were pulling the paper through, his right hand and arm were caught and went through these rollers. The operator stopped the machine immediately, but not before the employee's arm had been pulled in to the elbow.

IT WAS only a question of time till somebody reached too far into the rollers. Then management installed a guard.

Investigation. To prevent a recurrence of this type of accident two steps have been taken:

1. A guard has been installed at the sheeter which will prevent a man from reaching as high as the employee did.
2. An emergency stop switch which would be activated when someone were pulled into these rolls has been designed and will be installed on the machine.

Comment. Here again we have admitted that the accident was caused by lack of machine design, or guarding. The problem was not recognized until an injury occurred.

Management could have said that the man disobeyed instructions and warnings and reached up too far into the machine and thereby got his arm caught. It could also have said that disciplinary action would be given in the event another employee did the same thing. Evidently management in this case was willing to admit that it had not done its job as completely as it could have been done in the first place.

The accompanying illustration re-enacts the accident described here.

H_2S Poisoning

Description. Two men were shoveling contaminated sand from inside a filter tank. An air hose lying on the sand was blowing vapors from the sand.

One of the workers shouted to a third man outside the tank to

—To page 130

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The Iron Age "Storm Trooper" features a Bearfoot Neoprene Crepe Safetred sole and heel. There is no outside heel to catch and trip the wearer. This one-piece sole and heel construction distributes the weight more evenly and affords a solid arch support. Other custom features are Pacifate vamp lining, leather toe lining, Dacron stitching, a sweat-proof insole and rawhide laces.

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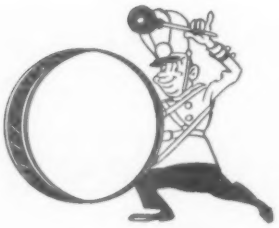
SHOWMANSHIP IN SAFETY



By B. J. O'Brien, *Public Information Department, NSC*

Double or Nothing

L. E. Bush, safety supervisor for Armstrong Cork Co., Lancaster, Pa., submits this successful promotional stunt.

Aimed at stimulating employee participation in safety suggestions, the campaign was a joint effort of the safety department and the suggestions department, both a part of Armstrong's personnel section.

The company announced that it would pay "Double or Nothing" (a $2.00 suggestion gets you $4.00, a $5.00 suggestion gets you $10.00) for accepted safety suggestions.

TOP "Double or Nothing" suggestor was Elmer Longenecker (left), Lubrication Department, who submitted more entries than any other floor plant employee. Eight of them—also a record—were accepted. Elmer is shown here going over one of his entries with Sam Gatchell of the Suggestions Committee.

"Double or Nothing" was chosen as the slogan, and an elaborate advertising campaign was set up. Special suggestion blanks were printed and attached to every time card. All investigators' reports were stamped, "Double or Nothing" and posters were placed on all bulletin boards and on large flashboards at the plant entrances. In addition, stories of interest were carried in plant publications.

According to C. D. Miller of the suggestions department, the results of the promotion were beyond all expectations. Two hundred and fifty-four safety suggestions were submitted during the first month of the contest. Ninety-eight of these were adopted.

The promotion was not only a huge succeess but the employees made extra money with their ideas, and at the same time, made the plant a safer place to work.

W. T. Williams Wins Award for August

W. T. Williams of Jones & Hill Insurance Agency becomes the showman of the month for submitting the Wilson & Toomer Fertilizing Company blackboard idea. This artistic stunt went a long way in proving that a good safety promotional idea doesn't have to be elaborate or expensive when thought and ability are combined.

Mr. Williams qualifies to compete for the Showman-of-the-Year award, and if he is judged the winner he will win a handsome Parker "Magnetix" desk set. Why not send your safety ideas and get in on the contest? Just mail your entries to B. J. O'Brien, "Showmanship in Safety," NATIONAL SAFETY NEWS, 425 N. Michigan Ave., Chicago 11.

False Orb Proves To Be Real "Eye" Opener

Gruesome and grotesque safety objects are the subject of much controversy, but when other safety measures fail they sometimes prove to be a most effective means in preventing accidents. Here's what one man did—and got results.

J. J. Tobin, former supervisor of safety, Albany Car Shops, New York Central Railroad Company, in an effort to prevent eye injuries, and to show the need for protective goggles, decided that something should be done to arouse unsafe workers into becoming eye conscious.

He purchased a window display type glass eye which resembled a

horribly damaged human eye. Whenever Mr. Tobin saw a worker not wearing his goggles, he called him aside and showed him the "eye." It never failed to make an impression. The "eye" was so gruesome that it made some workers ill just to look at it, even though they knew it to be made of glass.

Company records showed a rapid decrease in eye accidents.

"And now," said the Sunday school teacher, "Who can tell me anything about Ruth?"

Little Johnnie stood up. "He hit 60 home runs one year."

Protect your plant with the same Ansul extinguishers that guard this big steel mill

Well-planned safety and fire prevention programs are doing their share to protect lives, property and production schedules at the Great Lakes Corporation, Detroit, Mich., division of National Steel Corporation. Ansul fire extinguishers are playing a part in this successful program.

Your safety program deserves the best in fire protection. Remember, fire doesn't give you a second chance. Here are three big reasons why Ansul dry chemical extinguishers can take the worry out of your fire protection program and help you maintain a safety record to be proud of:

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Get in touch with your local ANSUL MAN through the yellow pages of your phone directory, or write direct to ANSUL CHEMICAL COMPANY, DEPT. NS-9, MARINETTE, WISCONSIN.

ANSUL

INDUSTRIAL HEALTH

Abstracts of current literature
on Occupational Hygiene, Medicine, and Nursing
By F. A. Van Atta, *Industrial Department, NSC*

Health Service and Collective Bargaining

"Labor Calls the Shots on Health Service," by Harry Becker. *The Modern Hospital*, 86:85-87 and 144-150 (January 1956).

THERE IS A consistent policy and a clearly evident trend in the underlying policy statements of labor leaders with respect to health programs and the health issues currently being discussed in collective bargaining. The pattern of labor thinking is so uniform throughout organized labor that there is little doubt of the probable course of developments in the health service field over the next five or 10 years.

The views of management are going to become increasingly important over the next few years, at least on some issues, because the labor unions are going to be focusing their attention on the character and type of benefits while management is going to be concerned with the factors which affect the costs of these benefits and how factors increasing the costs can be offset by more efficient and effective use of the funds which are provided.

Since management pays a substantial proportion to all of the costs of the benefit, they are going to be asking the persons providing the health services more and more persistently how the costs can be kept to a minimum while providing the levels of protection agreed to in their contracts.

The views of labor unions from all sections of the country were sought on some of these questions and the synthesis of the answers obtained is the basis for this paper. One of the most striking things about these views is that there are no particular variations either depending on the geographical location or the size or type of union, all of the labor unions from all types and all parts of the country have the same objectives and this is consequently going to be a national rather than a local or regional problem.

Up to now health benefit programs have not been a top priority collective bargaining issue and although most contracts now call for some health benefits as a condition of employment, the plans are drawn up rather piecemeal. Sometime shortly the health benefits are going to become one of the top priority issues in one of the major pattern setting negotiations and when this occurs the health benefit plans will begin to assure the uniformity which is now seen in industrial pension plans.

It is probable that a hospital medical benefit program for federal government employees and their dependents, with the federal government carrying part of the cost in much the same manner as many private employers do will come up for study in either the present session or the next session of Congress. If this does come up and is fully discussed in Congressional hearings on the floor of Congress, the program which emerges may have a very broad impact on the general pattern of health and welfare funds as the federal plan may become a standard for private plans to be established.

Who Will Pay?

The Congressional investigation of existing health and welfare plans and the legislation on the subject which is likely to be introduced are also apt to result in further Congressional debate on labor management health programs and in the curbing of practices not in the public interest or not in the interests of employees or employers. The relations between the employers, the unions and the insurance companies which resulted in a higher than necessary cost of protection are almost certain to receive a considerable amount of attention and some current practices are apt to be modified.

One of the things which seems to be very much in the minds of the unions is full employer financing of the health protection program. Every union from which information was obtained had this as one of its goals. This is taken generally as a secondary goal with the primary goal the negotiation of satisfactory benefit levels and complete coverage of health benefits before an attempt is made to establish the principle of non-contributory financing.

The trend is definitely away from bargaining for money and toward bargaining for specified standard benefits. The tendency now is to have the employee's contribution fixed and the employer required to pay the difference necessary to provide the stipulated benefits with the fixed employee contribution. This naturally means that any rate increases are absorbed by the employer during the life of any specific contract.

Under these conditions it is safe to assume that the employer's cost for health benefits will increase five per cent or more per year over the next few years if the benefits remain the same and that the increase will be much larger if increased benefits are granted, as is the present general trend.

A very significant observation is the widely held belief among labor union people that the nonprofit community prepayment plans were the types of agencies most likely to provide services which would meet employee

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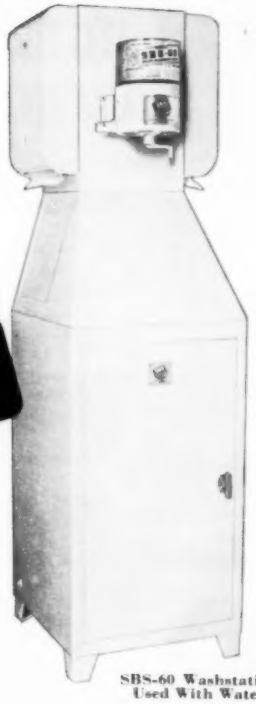

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needs. Some unions feel that the plans should be labor union administered or labor management administered agencies but this view did not predominate except as a last resort alternative.

The reason for preferring the non-profit community plans varied but probably the major reason was that it offered a fair opportunity for a comprehensive service benefit approach and that it offered an opportunity for consumer participation in policy making. There was also a general feeling that the non-profit plan could act as an effect liaison agent between the consumers and the providers of services.

The unions are also quite unanimous in their desire for "comprehensive service benefits" although what is meant by a comprehensive service is somewhat variable from union to union. The specific service benefits for physician services are of greatest concern to most union officials. One international union president has said about this:

"The application of indemnity features in accident and health insurance has always baffled me. I know of no other field of insurance in which so many price tags appear. For example, I have collision insurance on my car. Of course, it has a $50 deductible clause, a principle, by the way, which I consider wholly inapplicable to health insurance.

"But nowhere in the policy do I find anything which says the company will pay so much for a crumpled fender, so much for a sprung door, or so much for a broken windshield. If the car is in a collision I take it to a repair shop, after proper arrangements have been made, and have the damage repaired at the expense of the insurance company.

"But when it comes to the human body the insurance companies go around hanging price tags on the allowable price for services to remove ailing tonsils or appendices or to set broken limbs.

"Beyond this there are grounds for believing that the application of indemnity to surgical and medical insurance has played a part in increasing the cost of medical care. Many unions negotiated

health plans underwritten on the indemnity basis. That may seem at odds with what I am saying about labor's wants in health insurance, but when unions start negotiating health and welfare plans they had to take what was available.

"In case after case where the union negotiates higher schedule benefits in an attempt to relieve the covered employees of additional medical costs, the level of medical charges rises soon after, leaving the covered employees no better off than they were before. Now this phenomena may be logical in the light of the sliding fee system of medical charge based on ability to pay, since, in a way, the insurance benefits constitute an additional resource to the patient. But the ultimate result would be to convert health insurance to a benefit plan for the physicians."

This statement is rather typical of statements made by all responsible labor leaders who commented on their views as to the direction in which health benefit plans would go although it is rather more restrained than average.

Aside from the question of service benefits for physicians' services the next major consideration stressed by all labor leaders was the need for less emphasis on in-hospital benefits and more emphasis on the full range of medical services which will detect disease early in the course of an illness and provide for prompt and expert diagnosis and for early treatment.

To the extent that labor union views influence prepayment medical plans it seems certain that in the future they will place more emphasis on prevention, early diagnosis, and early treatment than on treatment of major illnesses. The labor union pressures for union operated clinics and for closed panel types of medical services are based almost entirely on this desire for comprehensive protection and for preventive medicine as opposed to treatment. This will be a real problem in the organization of services but it is a problem which will undoubtedly be worked out because the de-

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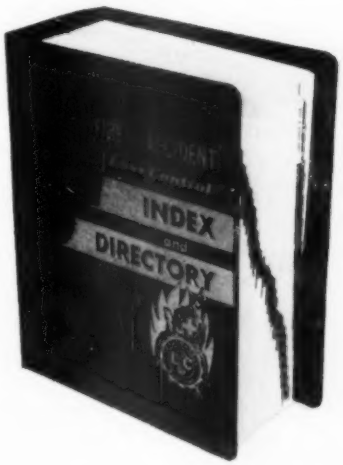

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CONSULTATION CORNER

By George MacDonald, *Industrial Department, NSC*

Got a problem in accident prevention or occupational hygiene? Questions are answered by mail, a few of general interest being selected for publication here

Power Truck Fumes

Question. Recently, we have received numerous complaints regarding fumes from our gasoline-powered fork trucks as they operate and pass through some of our departments.

Employees have suggested we install a tail pipe which would extend up and over the operator. It is their belief this would disburse the fumes up, rather than directly in their work area.

My feeling is that under certain conditions, the operator would be exposed to greater danger than the department employees are experiencing at the present.

Fumes from trucks in closed areas, low ceiling departments and between stock-bins could no doubt result in a more serious condition. However, the complaints are coming from areas where we have very high ceilings and large areas where we feel that fumes disbursed are of nuisance value only.

I will appreciate your comments on extending the tail pipe and any other recommendations you may have on these matters.

Answer. Your principal hazard from the exhaust of gasoline engines is that of carbon monoxide, which is colorless, odorless and tasteless. The fumes which the employees find obnoxious may or may not be associated with a considerable volume of carbon monoxide. There is only one way to determine whether you are getting dangerous amounts of carbon monoxide, and that is to run tests for the presence of this gas at intervals, where these trucks operate. The maximum allowable concentration of carbon monoxide in air is 100 ppm.

We cannot see any benefit in extending the tail pipe up over the operator's head. The carbon monoxide will still mix with the surrounding air, especially if there is air movement from the operation of the trucks. Carbon monoxide does not separate into layers.

If tests show that there is an excessive amount of carbon monoxide present where your trucks operate, you could either install catalytic exhausts or provide exhaust ventilation in the area sufficient to reduce the carbon monoxide concentration.

According to reports catalytic exhaust mufflers are quite effective in removing carbon monoxide and objectionable smell from gasoline engine exhaust.

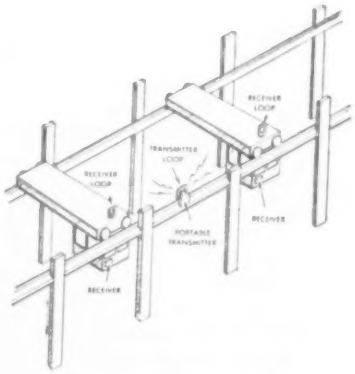
Crane Safety Systems

Question. In the past month there have been two occasions when an overhead crane repairman missed serious injury when the machine on which he was working was struck by another crane operating on the same overhead rail.

We have approximately 10 buildings where more than one crane operates on the same rail. This has become a daily problem, as the cutting off of power to the conductor rails would seriously hinder production.

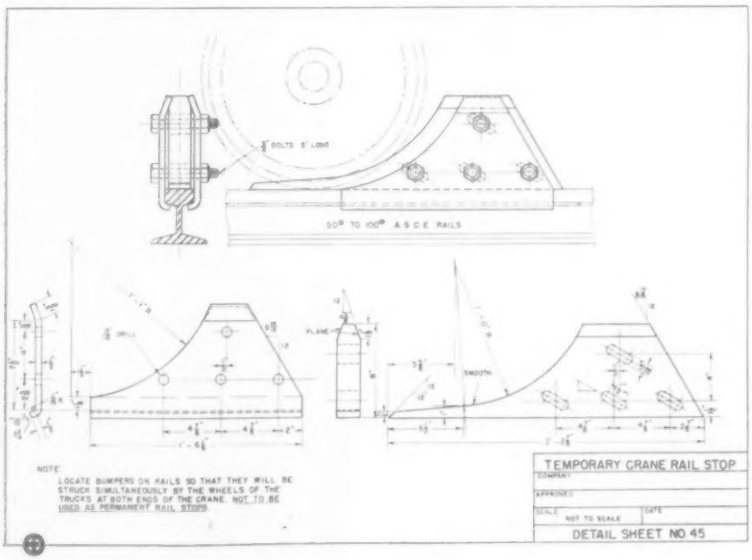
What safety systems for crane runways are recommended?

Answer. A new system, developed as a safety device, permits workers to attend a disabled crane without danger from other cranes approaching on the same runway.

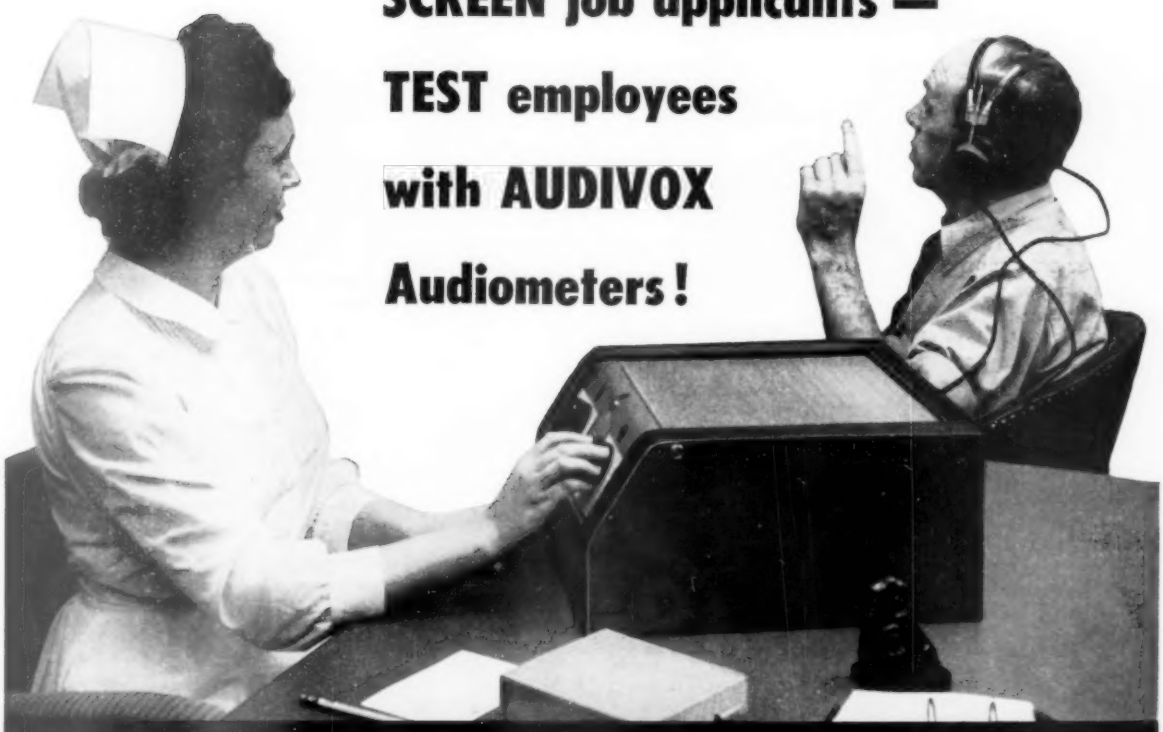


The system automatically gives warning of the approach or shuts off the movement of an oncoming crane. The distance at which the warning or shut-off action is effective is adjustable from one to 20 ft. with the proper setting made at the time of installation. Other similar applications to protect workers are practicable.

—To page 111


50# TO 100# A.S.C.E. RAILS
NOTE
LOCATE BUMPERS ON RAILS SO THAT THEY WILL BE STRUCK SIMULTANEOUSLY BY THE WHEELS OF THE TRUCKS AT BOTH ENDS OF THE CRANE. NOT TO BE USED AS PERMANENT RAIL STOPS
TEMPORARY CRANE RAIL STOP
COMPANY
APPROVED
SCALE NOT TO SCALE
DATE
DETAIL SHEET NO. 45

SCREEN job applicants — TEST employees with AUDIVOX Audiometers!



Audivox Instruments protect your Company from Deafness Claims — Curb Needless Accidents.

Now Audivox, pioneer with Bell Telephone Laboratories in the development of audiometers, brings you two accurate new electronic tools to measure hearing power. With these invaluable, *inexpensive* "hearing yardsticks," you can *screen applicants* for prior hearing loss, test *employees* for post-employment losses.

An Audivox screening-testing system is your company's best protection against "deafness" claims . . . needless accidents . . . and inefficiency on the job.

Get the facts about *both* Audivox Audiometers, Models 7 and 8. Mail the coupon *now*.

FOR DIAGNOSIS

Model 7 BD — Sensitive check model Audiometer measures hearing loss in db at discrete frequencies from 125-8000 cps. Bone receiver, microphone, masking, and other accessories available. Audivox supplies audiometers to VA Hospitals and Clinics. Can be recalibrated locally.

FOR SCREENING

Model 8 — Portable Audivox Audiometer goes *anywhere* to screen your applicants. Accurately measures hearing loss in db from 250-8000 cps. Group screening equipment available for up to 40 individuals.

audivox

Successor to *Western Electric* Hearing Aid Division

AUDIVOX INC., Dept. Y, 123 Worcester St., Boston, Massachusetts:
Please send me FREE detailed information on Audiometers by Audivox.

NAME _____

STREET _____

CITY _____ STATE _____

THE ACCIDENT BAROMETER

Prepared by the Statistics Division,

National Safety Council

ACCIDENTAL DEATHS in May numbered approximately 8,100, or 1 per cent more than occurred in May a year ago. Aside from a small decrease in home accident fatalities, each class showed some increase over 1955.

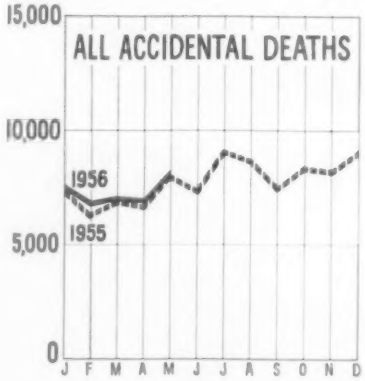
The total for five months was 36,500, an increase of 4 per cent over last year. There were more deaths from motor-vehicle and public non-motor-vehicle accidents, fewer deaths from work accidents and about the same number from home accidents.

Motor-Vehicle Deaths

The May total of motor-vehicle deaths was 3,170, an increase of 4 per cent over May last year. Compared to 1954, it was an increase of 10 per cent.

Deaths for the five months totalled 14,720, an increase of 9 per cent over 13,550 a year ago. The five-month death rate per 100,000,000 vehicle miles is not available at this time, but the four-month rate was 5.9, an increase of 3 per cent over 1955.

Of the 45 states reporting for five months, 10 had fewer deaths than last year, 2 had the same number and 33 had more deaths. Reporting cities with populations of more than 10,000 had a decrease of 1 per cent for May but an increase of 6 per cent for the five-month period.



	1956	1955	Change
May	8,100	8,000	+1%
Five Months	36,500	35,100	+4%

Regional changes from 1955 in the five-month death totals were:

North Atlantic	+ 8%
South Atlantic	+10%
North Central	+ 6%
South Central	+ 7%
Mountain	+19%
Pacific	+19%

Work Accidents

Deaths from work accidents numbered approximately 1,300, or 100 more than in May last year. The total for five months was 5,500, a reduction of 2 per cent from 1955.

The May frequency rate for plants in community council contests was 5.74 per million man-hours, an increase of 3 per cent over last year. The five-month rate was 5.76, up 6 per cent. The May rate for plants in 18 sectional accident prevention contests conducted by the National Safety Council was 5.28, a reduction of 10 per cent from 1955.

Public Deaths

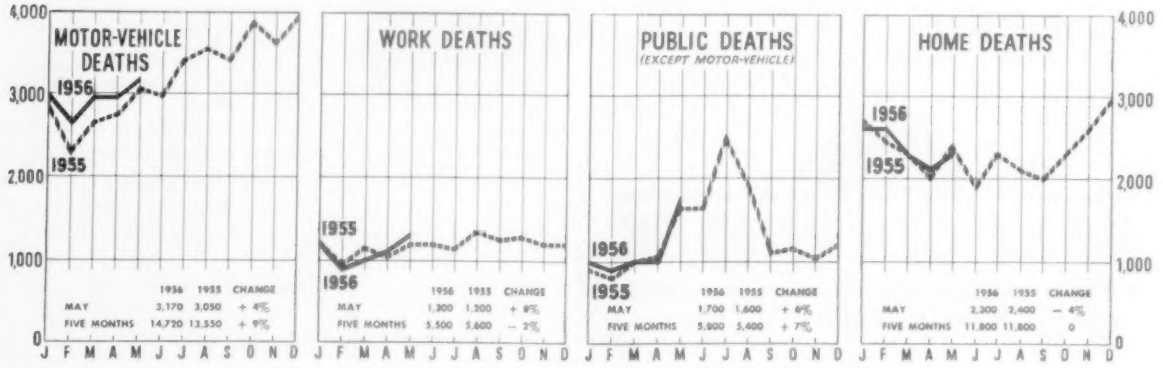
The death total for public non-motor-vehicle accidents in May was approximately 1,700, or 100 more than last year.

Deaths during the five months numbered about 5,800, an increase of 7 per cent over 1955. There was a sizable increase in deaths from falls and a moderate increase in fatal firearms accidents. Decreases occurred in burns, drownings and transportation accidents. Aside from no change in deaths of children 5 to 14 years old, all age groups showed increases over last year with the largest change recorded for persons 65 years and over.

Home Deaths

May deaths from home accidents totalled about 2,300, a reduction of 4 per cent from 1955.

The five-month death total was approximately 11,800—no change from last year. Increases in deaths from mechanical suffocation and burns were offset by decreases in deaths from poisonings, falls and firearms accidents. Increases were recorded for children under 15 years of age and persons 25 to 44 years old; decreases for young people 15 to 24 years of age and persons 45 years and over.



Occupational skin diseases can be stopped here!

Armour Hexachlorophene Soaps destroy up to 95% of skin bacteria that spread infection—offer you the easiest, thriftiest way to protect employees!

Absenteeism and employee inefficiency caused by skin infection and dermatitis will cost industry more than 100 million dollars this year! How much will they cost you? You can protect your employees by simply replacing the ordinary soaps in your washrooms with Armour Hexachlorophene Soaps—Armour Liquid or Formula #99® (a germicidal powdered hand soap with either borax or a heavy-duty vegetable scrubber added). This step can add important benefits in insurance and labor relations, too!

These Armour Soaps thoroughly cleanse the skin of irritants that cause contact dermatitis and destroy up to 95% of the skin bacteria that cause and spread infection. Only Hexachlorophene gets these results—it's the first germicidal agent ever found that stays antiseptic in soap.

WRITE ARMOUR TODAY FOR A TRIAL ORDER! Fill out the coupon on the right for prompt delivery. Also send for the informative booklets prepared by Armour for your guidance and convenience. They're free!

SEND THIS COUPON TODAY! N-9

Please send me the items I have checked:

Booklets— ☐ "The Prevention of Occupational Skin Diseases"
☐ "Hexachlorophene Soap for Industry"

Trial order:
☐ Armour Liquid, 5 gal. @ $3.00 per gal.—$15.00
☐ Formula #99 (Vegetable) 10-5 lb. bags—$12.00
☐ Formula #99 (Borax) 10-5 lb. bags—$11.50

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

ARMOUR *Soap Division*
INDUSTRIAL SOAP DEPARTMENT

© Armour and Company • 1355 West 31st Street • Chicago 9, Illinois

Voice of the Reader

Let's have your views on current topics. You don't have to agree with us

A Matter of Degrees

NEW YORK. May I call your attention to a serious error in the article, "Let's Be Realistic About Chain Slings," by H. M. Wilson? Please note page 182 on the twentieth line, "If the temperature of the chain does not exceed 100 F." This should have been 1000 F. and is a reflection on the strength of the product.

PAUL E. PEDERSEN
Cunningham & Walsh, Inc.

(It seems that the more obvious the mistake, the better chance it has of slipping through. Temperatures in many parts of this continent top 100 degrees occasionally and there have been no reports of chain and wire rope having been weakened by them. Unfortunately, because of the error, the reader is not given the upper safe limit for chain. Our apologies to Mr. Wilson and American Chain and Cable Company.—Ed.)

Key to Health

NEW YORK. I enjoyed the editorial, "Nerves? Everybody Has 'Em," in the June issue. I liked particularly the philosophy of the old lady, "Trust in the Lord and keep your bowels open."

RUSSELL DEREAMER
Consultant—Personnel Practices
General Electric Co.

We Slipped

BOSTON. I was looking over with interest your annual Fire Protection Issue and noticed that we are called the National Fire *Prevention* Association in the editorial on page 17.

Also, on page 144 an item about an automatic fire detector and alarm states that the NFPA has approved this system. Our association does not approve systems or devices. Neither does the National Board of Fire Underwriters.

PERCY BUGBEE, *General Manager, National Fire Protection Association*

Safety Promotion in India

BOMBAY, INDIA. The National Safety Council has very kindly been sending us safety cartoons which we have used in our house organs. These have been most welcome. Unfortunately I am running out of stock and would greatly appreciate more cartoons on industrial safety.

I also note the Employee Publications News Letter of which I have received the January 1956 issue. Could I receive it regularly?

I shall be extremely grateful for any material you can make available—articles, cartoons, photographs, etc.

Incidentally, I am enclosing a cutting of an article by Mr. Robert D. Gidel. We would welcome

Designed to give EXTRA protection!
HOOD reinforced GAUNTLET

No. 7703 Hood's new No. 7703 gauntlet, made for general industrial use, puts special emphasis on forearm protection. This gauntlet has an exclusive thumb crotch reinforcement and a heavy bind on the 6" cuff. Industrial weight, 14½" over-all, and fully Neoprene coated.

Write today for free Hood Glove Guide—shows you how to choose the RIGHT glove for EACH job.

New HOOD "B-41" Butyl Gloves
Protection Against Acids

Protect workers' hands from acids, also lessen danger of injury by absorption. Flexible, comfortable yet rugged and long-lived.

HOOD RUBBER CO., WATERTOWN MASS.
a division of the B. F. Goodrich Company

RUBBER • NEOPRENE • PLASTIC COATED INDUSTRIAL GLOVES

articles such as this for reproduction in our house organs. Could you help us with this also?

VICTOR PARANJOTI, *The Cement Marketing Co. of India, Ltd.*

(Of course, we are glad to give permission for reprinting Mr. Gidel's articles and to add Mr. Paranjoti's name to the mailing list for the News Letter and other releases for company publications. —Ed.)

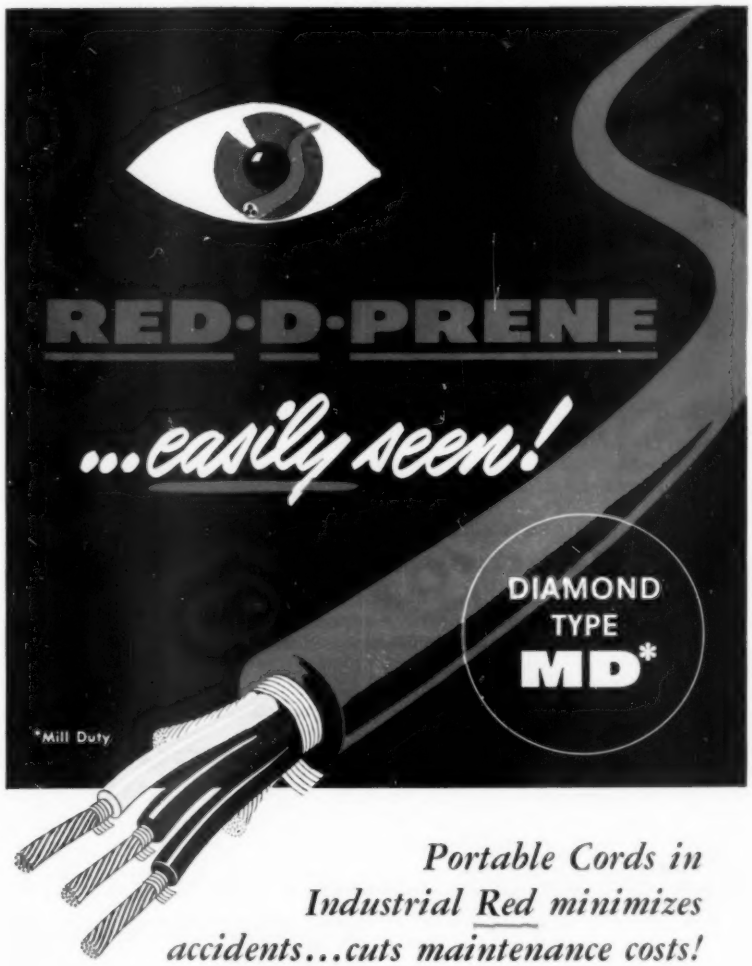
Employees Pledge Support To Job Safety Week

TWENTY-SEVEN employees of International Harvester Company's West Pullman Works in Chicago were honored at a safety appre-

ciation luncheon as a part of the company's National Job Safety Week activities.

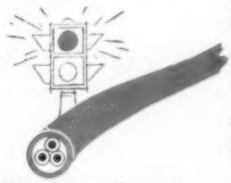
Their names were selected at random from more than 2,000 signatures on a scroll pledging support to the special week (May 13-19). As guests of the works manager and his staff, the employees were presented with gifts in appreciation of the support given Job Safety Week and for the excellent safety performance through the years.

The luncheon was presided over by C. E. Schultheis, general superintendent, who complimented the guests on their safety record and expressed the belief that the first National Job Safety Week, so designated by President Eisenhower, should serve as an inspiration to all employees.



Portable Cords in Industrial Red minimizes accidents...cuts maintenance costs!

No flat sides, no off center conditions. Gives maximum flexibility, is moisture resistant.



Industrial Red sheath provides maximum visibility for absolute identification.

For positive identification — in your stockroom or inside and outside the plant by maintenance men—Type MD RED-D-PRENE is your safe choice! First designed with a tough, oil-resistant Neoprene sheath (in Industrial Red). Assures long wear, materially reduces maintenance costs. Carries current where you want it, safely and at lower cost. Outstanding for heavy duty use in Mill and Plant installations.

Without delay . . . write for our new descriptive brochure and samples!

Trade Mark

DIAMOND WIRE & CABLE CO.

SYCAMORE, ILLINOIS

Safety CAP has narrow brim at sides and back, visor in front. Weight 12-1/4 oz.

Safety HAT has full brim for greater all around protection. Weight 14 oz. Chinstrap is optional.

Impact Test • Here, eight-pound ball, dropped five feet, measures the force of impact transmitted to the head of the wearer (here simulated by a wooden headform). Jackson Safety Hats withstand this test well within the specified limit.

Outside, they're FIBER GLASS

Compression molded of glass fibers and polyester resins, Jackson Safety Hats and Caps are made of the same miraculous substance that's sweeping the country in countless new applications. Combining lightness and resilience with toughness and strength, fiber glass provides the strongest protection per unit of weight. Strong, two-way ribbing on the crown, and heavy edges along the brim resist impact from all sides.

—in your choice of COLORS

For indentification of workers by trade, Jackson offers Safety Hats and Caps in grey, white, yellow, orange, green, blue and brown. Other colors may be furnished on quantity orders.

Inside, a Jackson PLUS VALUE

The headband of extruded plastic, far firmer than the usual headband materials, is durable, holds its shape, and gives better fit. It allows easy, yet positive individual fitting, is clearly marked off in hat sizes. A cork-lined sweatband adds comfort, is easy to replace.

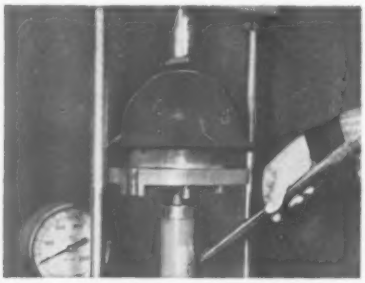
Hammock straps of webbing give adjustable support on top of the head and provide the required safe distance between head and hat shell.

Headband and hammock straps button to the inside of the hat shell, leave ample room for all around ventilation.

—tested for your protection

They exceed the requirements of Federal Specification GGG-H-142b when tested for *electrical resistance*, *impact*, *penetration*, *flammability*, and *water absorption*. Their *weight* is well below the specified limit. Two of these tests are described at the right.

Penetration Test • Pointed steel 16-oz. plumb bob, dropped 10 feet squarely onto center of hat crown, causes only slight penetration, well below the specified maximum. No damage is caused to headband and crown straps, nor to the wooden headform supporting the hat in this test.



Slow Torture • Used regularly for quality control and close scrutiny of every component is Jackson's own method of testing under hydraulic pressure. It proves Jackson Safety Hat superiority under *sustained loads*, hazards present in many occupations.

ACCESSORIES...

Chinstrap of adjustable elastic webbing (left) and "Winterizers": *Colcap* to protect the skull, *Frigicap* to protect the ears as well (right).

JACKSON
PRODUCTS, INC.
WARREN · MICHIGAN

Jackson Products, makers of arc-welding helmets, gas-welding goggles, grinding goggles and face shields, offers these combinations:
SAFETY-CAP-AND-HELMETS • SAFETY-CAP-AND-GOGGLES • SAFETY-HAT-AND-FACE-SHIELDS
Sold through Safety and Welding Supply Dealers throughout the World

★ ★ ★ FLASH

SPEEDI-DRI SPOTLIGHT

★ ★ ★ FLASH

A REPORT TO MANAGEMENT ON INDUSTRIAL SAFETY

VOL. 11 SEPTEMBER 1956 No. 2

Sol-Speedi-Dri Now Flecked with Green

OUT OUR WAY BY J. R. WILLIAMS

OWOOH! FOR NINE YEARS HE'S BEEN STANDIN' ON SOL-SPEEDI-DRI AN' HE DON'T KNOW WHAT IT'S FOR!
BECAUSE IT'S NONE OF MY BUSINESS! THEY GOT MEN DOIN' THAT!
WHY IS IT SOME PEOPLE HAVE GOTTA BREAK A LEG OR ARM OR SUMPIN' BE-FORE THEY BOTHER TO FIND OUT ABOUT SOL-SPEEDI-DRI?
THE HERMIT
J.R.WILLIAMS

KEEP SAFETY STANDARDS UP, COSTS DOWN • HERE'S HOW

Price is an important factor in your choice of a mineral floor absorbent—but, obviously, not the *only* consideration. Here are some other things to weigh before making your selection:

ABSORPTION

Does the material thoroughly absorb and retain oil and grease deposits—keep floors slipproof underfoot? If not, it means more frequent application, requiring more material and manpower. And what price do you put on a crippling injury caused by a slip or fall?

VOLUME WEIGHT

The more volume you get per pound of absorbent, the more coverage you get (a pound of feathers spreads farther than a pound of sand)—which means larger, safer working areas for employees.

UNIFORMITY

Do you get uniform volume weight and efficiency—bag after bag, all year long? You're paying a uniform price.

ABRASIVENESS

Is the material gritty and abrasive to the extent it could damage working parts of machinery?

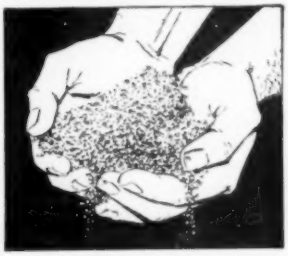
DUST

Does the absorbent create dust when applied or when subjected to heavy traffic? A dusty absorbent causes serious safety and maintenance problems—affects efficiency and morale of workers.

Judge Sol-Speedi-Dri by these factors—and you can't logically use any other mineral absorbent!

Top-Selling Oil and Grease Absorbent Has New "Trademarking," New Performance Qualities

Beginning with shipments from our plant in mid-April, industrial safety men can be sure they're getting the "finest of oil and grease absorbents" for their plant floors. For Sol-Speedi-Dri—long the answer to that description—now has a *new look*. Scattered through each bagful are granules of pure Sol-Speedi-Dri *colored green* by a new process. These green flecks have been developed for your protection. They're a trademark that clearly identifies *double S-d* quality — and none other!



VASTLY IMPROVED PRODUCT

Green-flecked Sol-Speedi-Dri is new in more ways than one. Speedi-Dri Corporation's research laboratories have made dramatic improvements in basic *double S-d* properties—improvements that mean greater safety underfoot, more efficiency and economy all year round.

MORE SLIP-RESISTANCE

There's no safer mineral absorbent than new Sol-Speedi-Dri. Its harder, thirstier granules soak up oil and grease thoroughly—never leave a slippery "scum" when swept up, never cake or mat down under traffic.

NO DUST HAZARD

Sol-Speedi-Dri is the most dustless mineral absorbent made. Its granules are de-dusted in production—are completely inert.

NEW LOOK FOR BAG

Green-flecked *double S-d* is new outwardly, too. Its bag has a brand-new design (see sample version below) — and features two sturdy kraft paper walls, plus a 90-lb. asphalt liner with siftproof seams.

NEW VALUE FOR YOU

Keep your plant floors clean, dry, and safe underfoot with green-flecked Sol-Speedi-Dri—your safest bet for dependable quality!

SEND FOR YOUR FREE SAMPLE

SPEEDI-DRI CORPORATION
(A subsidiary of Minerals & Chemicals Corp. of America)
83 Essex Turnpike, Menlo Park, New Jersey

☐ Send me a free sample of the new improved Sol-Speedi-Dri

Name_____

Company_____

Address_____

City_____ State_____

DISTRIBUTED IN CANADA BY G. H. WOOD & COMPANY, LTD., TORONTO

THE EXPOSITION

of the 44th Annual Safety Congress

Offers you the widest variety of

SAFETY PRODUCTS WORTH SEEING

ever assembled in a single place

This is your annual opportunity to window-shop the entire safety equipment industry . . . to see the latest developments . . . make comparisons . . . select the equipment that best meets your needs. Nearly every major manufacturer will be represented — 188 in all. Their booths will be staffed by experienced consultants, interested in your accident problems and anxious to help you solve them.

Plan now to take some time to visit the entire exhibit area—all three floors. It will be time well spent, and probably well repaid.

CONRAD HILTON HOTEL Chicago Oct. 22-26

North & South Exhibition Halls, Second & Third Floors

Open daily 8:30 to 5:30 p.m., Closes Thursday October 25

(Congress program sessions continue through Friday, October 26)

As businesses go, the manufacture and distribution of safety equipment is a comparatively young one. Thirty-five years ago a few companies were producing miscellaneous items of safety equipment as side lines. There were no standards of performance for these items and sales efforts were limited.

The Safety "Exposition" at the earlier Safety Congresses consisted of a few tables in sample

Introducing • • • • • •

36 years

Mine Safety Appliances Co.

35 years

Stonehouse Signs, Inc.
Surty Mfg. Co., Inc.

31 years

American Optical Co.
Elliott Service Co., Inc.

30 years

American Abrasive Metals, Inc.
The Patent Scaffolding Co., Inc.

29 years

Davis Emergency Equipment Co., Inc.
Lehigh Safety Shoe Co.
Standard Safety Equipment Co.

28 years

Metropolitan Life Insurance Co.
Pulmosan Safety Equipment Co.
Safety First Shoe Co.
W. H. Salisbury & Co.

27 years

Alfred M. Best Co., Inc.
Chicago Eye Shield Co.
Gro-Cord Rubber Co.
Willson Products Division,
Ray-O-Vac Co.

26 years

The Protectoseal Co.

25 years

R. H. Buhrke Co.

24 years

E. D. Bullard Co.
Hy-Test Safety Shoes Div.,
International Shoe Co.
Walter Kidde & Co., Inc.

23 years

American LaFrance Corp.
Iron Age Div., H. Childs & Co., Inc.

22 years

Industrial Gloves Co.
Reece Wooden Sole Shoe Co.
Safety Clothing & Equipment Co.

20 years

Columbus McKinnon Chain Corp.
Dockson Corp.
Junkin Safety Appliance Co., Inc.
Justrite Mfg. Co.
Keystone View Co.
Milburn Co.

rooms with displays of rather primitive safety spectacles, work gloves and foundry type shoes.

But the missionary efforts of the National Safety Council, founded in 1913, were beginning to be felt. Men were learning that education alone was not enough to protect men against job hazards. Companies set up research laboratories. Safety men began to experiment with test protective devices. Standards were developed.

Anybody attending the Exposition at one of the recent National Safety Congresses could not fail to be impressed with the fact that the manufacture and distribution of protective equipment for the worker had become a big, mature industry. And without the safety products now available many of today's processes would be too hazardous for practical operation.

the Exhibitors at the 44th National Safety Congress and Exposition . . . old faces and new

19 years

Kimball Safety Products Co.
B. F. McDonald Co.
Martindale Electric Co.
G. H. Packwood Mfg. Co.
Rose Mfg. Co., Inc.
Wheeler Protective Apparel, Inc.

18 years

Thom McAn Safety Shoe Div.
A. Schrader's Son Div., Scovill Mfg. Co., Inc.

17 years

Aetna Casualty & Surety Co.
Ampco Metal, Inc.
Ansul Chemical Co.
Bausch & Lomb Optical Co.
Bradley Washfountain Co.
Stewart R. Browne Mfg. Co., Inc.
Karel First Aid Supply Co.
Walter G. Legge Co., Inc.
Lightfoot Schultz Co.

16 years

Hild Floor Machine Co.
Sellstrom Mfg. Co.

15 years

Acme Protection Equipment Co.
Insto-Gas Corp.
Medical Supply Co.
Onox, Inc.

14 years

M. E. Cunningham Co.
J. H. Emerson Co.
The Surety Rubber Co.

13 years

American Chain & Cable Co., Inc.
General Detroit Corp.
Sani-Mist, Inc.
Speed-Dri Corp.
Waverly Petroleum Products Co.
Williams Jewelry & Mfg. Co.

12 years

John H. Breck, Inc.
Dunn Products
Mathias Klein & Sons
Oil-Dri Corp. of America
Pyrene-C-O-Two Div., The Fyr-Fyter Co.
United States Safety Service Co.
Watchmoket Optical Co.

11 years

A. B. Chance Co.
Marsh & McLennan, Inc.
Occupational Hazards
Scott Aviation Corp.
S. G. Taylor Chain Co.

10 years

E. I. Du Pont de Nemours & Co., Inc.
Julian A. McDermott Corp.
Miller Equipment Co., Inc.
The Positive Safety Mfg. Co.
Randolph Laboratories, Inc.
Stephenson Corp.
Trinal, Inc.

9 years

Arcadia Mfg. Co.
W. M. Bashlin Co.
Columbus Glove Mfg. Co.
Masury-Young Co.
Melflex Products Co., Inc.
Racine Glove Mfg. Co., Inc.
Rockwood Sprinkler Co.
Welsh Mfg. Co.
Wyandotte Chemicals Corp.

8 years

American Allsafe Co.
Edmont Mfg. Co.
Jomac, Inc.
Porto-Clinic Instruments, Inc.

7 years

Advance Glove Mfg. Co.
Alan Wood Steel Co.
W. H. Brady Co.
Cambridge Rubber Co.
Dow-Corning Corp.
The Eagle-Picher Co.
Fendall Co.
The Pac-Kit Co.
Union Wire Rope Corp.

6 years

Chemical Corp.
Detex Watchclock Corp.
Fairfield Glove Co.
Institute of Industrial Launderers
Micro-Switch, A Div. of Minneapolis-Honeywell Regulator Co.
Osborn Mfg. Corp.

5 years

Bil-Jax, Inc.
Boyer-Campbell Co.
Electronics Corp. of America
Frommelt Industries
The Globe Co., Grip-Strut Div.
Hygiene Research, Inc.
Interstate Rubber Products Corp.
Jackson Products, Inc.
Jones & Co.
Kelley-Mahorney Co.
J. Kunz Glove Co.
Lowery Brothers Co., Inc.
Maico Co., Inc.
Safety Tower Ladder Co.
Stop-Fire, Inc.
Wagner Sign Service, Inc.
Wolverine Shoe & Tanning Corp.

4 years

Brulin & Co., Inc.
Charleston Rubber Co.
Haws Drinking Faucet Co.
Newco Mfg. Co., Inc.
Permamix Corp.
Prairie State Products Co.
Safety Box Toe Co.
Scientific Industrial Supply Co.
U-C Lite Mfg. Co.

3 years

Admatic Corp.
Award Incentives, Inc.
Ayerst Laboratories
Beryllium Corp.
Bethlehem Steel Co.
Bone Dry Shoe Mfg. Co.
Buffalo Fire Appliance Corp.
Fine Organics, Inc.
Magnesium Co. of America
Peterson Engineering Co.
The Pioneer Rubber Co.
Radiator Specialty Co.
Sawyer-Tower, Inc.
Swivelier Co., Inc.

2 years

Akron Brass Mfg. Co., Inc.
American Biltrite Rubber Co.
Audivox, Inc.
Auto Crat Mfg. Co.
Beltone Hearing Aid Co.
Bemis Bros. Bag Co.
Lester L. Brossard Co.
Chrysler Corp.
Daisy Mfg. Co.
Davids Gloves, Inc.
Electronic Control Corp.
Fibre-Metal Products Co.
Ford Motor Co.
National Medical Supply Co.
Ted Prutsman Defrosto Mirrors, Inc.
Sarole, Inc.
Tect, Inc.
Vari-Products Co.
Westline Products Div. of Western Lithograph Co.
The Wilson Rubber Co., a Div. of Becton, Dickinson & Co.

1 year

Ballymore Co.
Cycle-Flo Co.
Dewalt, Inc.
Glendale Optical Co.
Jones & Laughlin Steel Corp.
Monsanto Chemical Co.
New Castle Battery Mfg. Co., Champion Safety Signal Div.
Notifier Mfg. Co.
Orthopedic Frame Co.
Oxy-Catalyst, Inc.
Putnam Roller Ladder Co., Inc.
Safeguard Mfg. Co.
Searjeant Metal Products, Inc.
The Tool & Mfg. Co., Inc.
Universal Match Co.

EDUCATIONAL EXHIBITORS

American Academy of Ophthalmology and Otolaryngology Subcommittee on Noise in Industry
American Red Cross
Federal Civil Defense Administration
Inter-American Safety Council, Inc.
National Safety Council
National Society for the Prevention of Blindness
New York University
Strategic Air Command

Red figures indicate the number of years the company has exhibited at the Congress.

Inside NSC

with Fred Lubet

Activities and people at 425 North Michigan

Personalities

Back in harness again after a three-month layoff due to surgery is H. Gene Miller, director of the Statistics Division. Also returned, after a month's sick leave, is F. A. Van Atta, director of the Research Division.

Perhaps one of the best-known —and best-loved—of all NSC employees is John Lamont, a warm-hearted and sharp-witted gentleman who first came to work for the National Safety Council in 1913, the year of its beginning. John left the Council in 1919 to work in South America, and rejoined the staff in 1941. He has been on leave since November 1955, due to illness.

So many of his friends have asked about him, and have extended regards to him through other members of the staff, that I thought it would be a good idea to give his address here, so that those who wish to do so may write to him directly. It is:

John Lamont
1417 E. 71 Place
Chicago 19

Miss Green Cross

Did you know there exists a real live "Miss Green Cross?" She's an NSC employee and is chosen annually at the staff picnic. "Miss Green Cross" this year is lovely Dolores Olander of the School & College Division.

Supposedly the choice of "Miss Green Cross" is in the hands of four judges—that's how it's been in past years. This year, however, our judges could do no better than narrow the field of 19 down to three finalists. At this point they were gripped by indecision and could go no further. So the final selection of "Miss Green Cross" was made a matter of the "people's choice." Miss Olander won on the first ballot.

Green Cross Soft Ball

Organized for the first time this year is a National Safety Council soft ball team, which competes in the City of Chicago's downtown league. Certainly the team is a sharp-looking outfit, but they have proved somewhat less sharp in performance. Thus far, our boys have won two and lost 11.

Of course our boys are playing against teams that have been organized for years and which can draw upon the talents of thousands of employees, not just 400 (the NSC working force).

TIP OF THE MONTH

Many members order materials from the Council on the order forms which accompany sample mailings. They then send in a purchase order covering the same materials. This sometimes results in duplicate shipments and duplicate billings—with resultant mixup and extra work for both NSC staff and the member.

To avoid this: (1) if possible attach your purchase order to the order form; (2) mark the purchase order "Confirming."

UNIFORMS OF THE DAY. Left: the uniform of the official NSC softball team, modeled by Dick Sipes, center fielder. Right: the uniform of "Miss Green Cross," modeled by Dolores Olander, holder of the title.

Pittsburgh COLOR DYNAMICS®

improves productive efficiency as operators are helped to see their work better

Properly engineered colors reduce eye fatigue and cut down accidents in Mt. Wolf Plant of the American Wire Fabrics Corp.

ANOTHER impressive example how Pittsburgh COLOR DYNAMICS improves productive efficiency and reduces danger of time-loss accidents by lessening eye fatigue among employees is the Mt. Wolf, Pennsylvania, plant of the American Wire Fabrics Corporation.

This plant, a subsidiary of The Colorado Fuel and Iron Corporation, one of the nation's leading steel producers and fabricators, manufactures insect wire screening and industrial cloth.

The benefits which derive from the COLOR DYNAMICS system of painting are best expressed in this comment of B. L. Weaver, American Wire Fabrics Corporation executive vice president:

"By the use of focal colors on working parts of our machines in contrast to eye-rest colors on stationary parts, operators see their work better. This reduces eye strain considerably. As eye strain is one of the chief causes of physical fatigue, we have found that both the quantity and quality of production are improved. Safety colors on hazard areas reduce danger of accidents.

"The clean, well-ordered appearance of our work areas maintains high morale among our employees and a friendly relationship between working force and management. It also makes our operators take pride in their environment. They help to keep their surroundings clean, simplifying housekeeping.

"We regard these benefits as a highly satisfactory plus, as painting the COLOR DYNAMICS way has cost us no more than conventional maintenance painting."

How You Can Get an Engineered Color Study of Your Plant — FREE

• Why not test the practical value of COLOR DYNAMICS in your plant—on a machine or two, or in a whole department? Send for our free comprehensively illustrated book which explains how you can make use of this modern painting system simply and easily. Better still, call your nearest Pittsburgh Plate Glass Company branch and ask to have a representative give you a detailed engineered color study of your plant, without cost or obligation. Or mail coupon at right.

Send for a Copy of This FREE Book

Pittsburgh Plate Glass Co., Paint Div., Department NSN-96, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your booklet "COLOR DYNAMICS."

☐ Please have your representative call for a COLOR DYNAMICS survey without obligation on our part.

Name_____

Street_____

City_____ County_____ State_____

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

The terrible vengeance of Joseph P. Fyffe

ON A WARM August evening in 1870, a footsore stranger in naval officer's uniform walked into East Haddam, Conn.

His name was Joseph P. Fyffe, and he was revenging himself on the Navy for refusing to advance him travel money to proceed to his new station, San Francisco.

He was trudging cross-country *on foot*. And conscientiously wiring in daily progress reports well-calculated to give his superiors apoplexy. His sixth, from Albany, N.Y., read in part:

> *"Entered Albany barefooted X Comfortable X Earning my keep as bartender X Local rum far superior that served in Navy X Am sending sample"*

At this, the Navy struck its colors, reversed its time-honored tradition, and began prepaying travel allowances.

Strangely enough, Joe Fyffe actually wound up as a rear admiral. That, of course, was years later; and he has long since passed to his reward. But his vigorous and outspoken independence is still alive and kicking in today's Americans. That's why our country is a strong, vital nation and why our country's Savings Bonds are one of the finest investments in the world.

165 million Americans stand behind U.S. Savings Bonds. *There is no better guarantee.* So buy Bonds regularly—and keep the ones you buy.

★ ★ ★

It's actually easy to save—when you buy Series E Savings Bonds through the Payroll Savings Plan. Once you've signed up at your pay office, your saving is done *for you*. The Bonds you receive pay good interest—3% a year, compounded half-yearly when held to maturity. And the longer you hold them, the better your return. Even after maturity, they go on earning 10 years more. So hold on to your Bonds! Join Payroll Savings today—or buy Bonds where you bank.

Safe as America – U.S. Savings Bonds

PUBLIC SERVICE ADVERTISING COUNCIL

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Getting the Most for the Safety Dollar

THE QUESTIONS

1. In your company, is the safety department consulted on necessary safeguards for new processes and equipment?

2. If you operate more than one plant, is there centralized control of purchases, or is each plant autonomous?

3. Are specifications or approved lists issued by company headquarters?

4. What sources of information have helped you in purchasing—ASA Standards, safety periodicals and manuals, advertisements, insurance carriers, government specifications, and approval lists, such as those issued by Underwriters' Laboratories, Factory Mutual Laboratories, Bureau of Mines, etc.?

5. Are employee committees helpful in deciding protection needed for their jobs?

6. Have you found salesmen helpful because of (a) Equipment handled by their companies and (b) Knowledge of industrial operations? (c) What more can salesmen do to help the safety man?

THE PARTICIPANTS

R. H. ALBISSER, Safety Manager, Chemical Division, Merck & Co., Inc., Rahway, N. J.

W. F. BROWN, Safety Director, Consolidated Edison Company of New York, N. Y.

R. A. HARSCHNEK, Safety Director, Swift & Company, Chicago.

HAROLD F. HAYDEN, Safety and Medical Director, Columbian Rope Company, Auburn, N. Y.

J. E. NICHOLS, Safety Director, Reynolds Metal Company, Richmond, Va.

M. C. M. POLLARD, Director of Safety, National Gypsum Company, Buffalo, N. Y.

W. O. WILSON, Director of Safety, Standard Oil Company (Indiana), Chicago.

SUMMARY

Safety departments exercise considerable influence in the purchase of equipment and supplies concerned with accident prevention and industrial hygiene. In addition, they are often consulted on operating problems where safety of personnel may be affected.

Because of vacations, business trips, and the pressure of duties in connection with the approaching National Safety Congress, the response to these questions was less than had been hoped for. The replies, however, give helpful information on the purchasing policies and practices of companies representative of those in which safety and operation are well integrated. The individual participants are all active in the work of their respective sections of the National Safety Council.

Seven industrial groups are represented: Chemical, Public Utilities, Meat Packing, Aluminum Processing and Fabrication, Gypsum Products, Cordage Manufacturing, and Petroleum.

Standards of the ASA and approval lists of testing laboratories are used freely.

Safety periodicals, advertising and exhibits help to keep consumers informed and bring them and the distributors together.

With few exceptions, salesmen are well-informed and helpful.

Machinery manufacturers should pay more attention to safety features in their products.

MR. ALBISSER:

Purchasing for safety is not only good business but essential in our operations. Some of our processes involve the handling of flammable or toxic materials. We could not operate satisfactorily unless we paid close attention to purchasing equipment and other plant facilities which have maximum safety built into them. Whether we are purchasing a new building, hand tools or window cleaning services, safety enters into the transaction. This is accomplished by following a few simple procedures established some years ago.

All plans for new equipment installations or revisions to existing processes are developed in cooperation with the Safety Department. Safety engineers are notified of new projects at the same time they are assigned to the design engineers. As plans develop for a new installation, safety requirements for equipment are made a part of the purchase order specifications. The safety aspects of new equipment and buildings to be constructed are but a part of the safety engineering services provided in planning new construction but they are of prime importance.

Equipment frequently used in our plans such as tanks, pressure vessels, extractors and certain piping are standardized. The design engineers merely have to refer to the standards to determine the equipment specifications, safety requirements, and installation details. It should be emphasized that we only have one set of standards. We do not have standards dealing solely with the safety aspects of equipment or its installation since we are great believers in integrating safety into engineering as well as operating and other instructions. Previously, when we used so-called safety standards we found that their effectiveness was shortlived. Our present standards are prepared with the cooperation of all interested departments. Since the engineers need only to refer to a single standard, they practically never deviate from these instructions unless the exception is cleared with all interested departments.

As to hand tools, laboratory glassware and other small items, we are fortunate because we have complete specifications in manual form for all such items. A few years ago we found that our plant stores were carrying over 8,000 different items. Through standardization, this list was cut about 40 per cent. We now purchase considerably fewer kinds of carpenter hammers, Bunsen burners and similar items, but the types that we are obtaining are the best and the safest for our purposes.

All of our plants do their own purchasing but only in accordance with our standard specifications. Even an unlisted dust respirator will not be purchased without the Safety Department's approval. The estab-

lishment of standards for these small items has not only resulted in a substantial reduction in cost but given us additional assurance that we are purchasing equipment which provides optimum safety.

In establishing standards as well as reviewing plans for new construction, we have found our fire insurance carriers most helpful. Of course we are also guided by standards of the National Fire Protection Association, the National Board of Fire Underwriters, American Standards and other associations in the establishment of our standards as well as by the codes of the governmental regulatory agencies. Using our fire insurance carriers' approved equipment list for such items as fire detection and extinguishment devices is an example of how to avoid expensive alterations and possibly more costly accidents. Plans for new installations and especially the sprinkler systems are reviewed by our fire insurance carriers' engineers before an approval for construction is issued. Likewise, purchase orders for pressure equipment specify that the vessels must conform to the ASME requirement and applicable regulatory codes.

As in most companies, we purchase a great variety of services from outside contractors. All contractors who have personnel in our plant are required to take precautions to insure the safety of our people and to minimize the dangers to their employees. These precautions are listed in an appendix which is made a part of every agreement. For example, in the use of open flames the contractors are required to take the same precautions as our own maintenance people and obtain a "hot work" permit. Whenever outside men are working in areas where toxic material may be encountered, they must wear the protective equipment which we specify.

Although these procedures have served us well, they are not a panacea. We still have occasional difficulties in obtaining equipment which will meet our rigid safety specifications. This is particularly true in the electrical field where many instruments used in laboratory and plant operations are not sufficiently safeguarded for use in areas where flammables are handled. These must be altered in our shops before being placed in service. Most of the suppliers, however, have been very cooperative. We are especially appreciative of the efforts made by their sales representatives who have cooperated with us and others in our industry to provide safer equipment.

Purchasing for safety has been of immeasurable aid in providing us with efficient plant facilities which have optimum safety features built into them. Any plans or procedures which play a major role in accomplishing such objectives with the minimum of red tape are certainly worthwhile.

MR. BROWN:

1. Yes.
2. Centralized control.
3. Yes.
4. NATIONAL SAFETY NEWS and others listed.
5. Does not apply.
6. (a) Salesmen are definitely helpful. (b) They are the best informed people on their specialties. (c) They can help by preparing material in advance and leaving it with safety directors for distribution.

It is the function of the Safety Bureau to coordinate all accident and fire prevention activities throughout the company. A very essential function of the Safety Bureau is the approval of materials which have a safety factor. While this applies especially to equipment such as rope, safety belts, etc., where a human life may be in jeopardy it is also important in material handling equipment or anything which has an injury potential.

In this connection it is necessary to maintain close contact with the Purchasing Department. Members of the Safety Bureau staff are in daily contact with the staff of the Purchasing Department. If the problem is system-wide it is the practice to hold meetings of all departments concerned with representatives of the Purchasing Department present. This is an excellent way to "iron out" any objections to obtaining a satisfactory safety standard for all materials and equipment.

It is sometimes necessary to determine if the claims a manufacturer makes for his product are true, also that a particular product is the most suitable for the use to which we intend to put it. In our organization the testing is done by the Test Bureau and the various laboratories at the request of the department concerned or the safety director.

Since we are all human beings we are subject to human weaknesses and an occasional failure. We recognize this fact and accordingly provide the best protective equipment obtainable. The best is the cheapest in the long run. In so doing we are making it possible for our employees to fail safely, if and when they do fail.

It is company policy that all materials and equipment be purchased with the safety factor in mind and not just the ability of the equipment to perform its operating function. Manufacturers of these things have to compete for sales. If the purchaser of a circular table saw buys on price alone he will usually be quoted prices minus the guards. Our purchasing agents do not believe it is good economy to save a few dollars at the expense of safety only to have the company pay out hundreds of dollars in compensation payments later on when an accident occurs.

It is the policy of Con Edison to plan and conduct its operations in such a manner as to provide the maximum of safety to its employees and the public. In other words, "Safety Comes First at Con Edison."

MR. HARSCHNEK:

The basic thinking within our company as regards our safety program is that safety should be integrated into the activities of all employees. Accident prevention is not something separate and apart from an employee's regular work activities. Accident prevention is not something separate and apart from every supervisor's responsibilities. It is just one phase of their total responsibilities. It is as important as rate of production, quality of product produced, yields, shrinks and gains, absenteeism, etc.

Answering your questions:

1. The Safety Department is consulted. The need for safeguards is investigated and decided upon by the interested Operating and Engineering Departments.

2 & 3. We are a multi-plant organization. Many of the larger units are more or less autonomous, except that safety devices on equipment are controlled from headquarters. As regards personal protective equipment, each unit is given information of approved or recommended items from which a selection may be made.

4. We believe that all the sources mentioned in the question have been helpful in the purchasing of our equipment. However, periodicals and advertisements, not necessarily in safety magazines, would rank at the top of these sources. By far the

—To page 131

Here's your "Task Force" for any type of fire

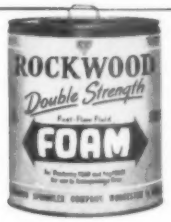
Complete team of Rockwood portable products combines speed, versatility and economy

Separately, each of these Rockwood products has its own particular advantages for fighting various types of fires. Together, they make a mobile, multi-purpose task force that delivers a whale of a lot of protection against *any* type of fire, whether it's Class A (wood, paper, rags, etc.), or Class B (flammable liquids). That includes personnel protection, too, because safety for the men who use them is an essential factor in all Rockwood fire fighting products.

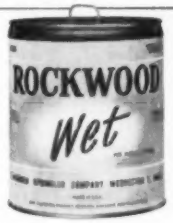
Rockwood's long, practical experience and constant research bring you not only new *efficiency* but new *economy* in fire-fighting methods and equipment. It will pay you to learn more about these and many other Rockwood products. Mail the coupon today for complete information on Rockwood's specialized fire-fighting products.

***Type SG-60 Nozzle.** A true all-purpose nozzle that fights fire 5 ways. It discharges high velocity WaterFOG, low velocity WaterFOG (with applicator), FogFOAM, solid stream of water or solid stream of FOAM.

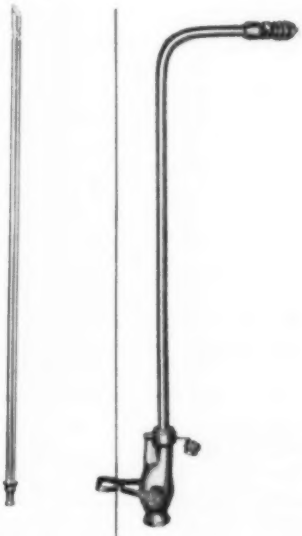
FOAM and "Wet" Eductor with the new FW Metering-Check Valve. Introduces Rockwood FOAM or "Wet" into hose lines, automatically proportioning correct amount of FOAM and "Wet" to water. Also usable wherever one liquid is fed into another on a fixed percentage basis.



***Rockwood Double Strength FOAM.** Puts out fires in flammable liquids, and in ordinary combustibles, quicker, at lower cost. Three parts FOAM and 97 parts water create a tremendous heat-resistant blanket. Flows freely at —15°F.



***Rockwood WET.** One part WET mixed with 99 parts water increases water's penetration and extinguishing action. Gives quickest results against deep seated fires. Saves time, water, manpower.



Bayonet Piercing Applicator. Has a hardened steel cutting tool attached to tip, enabling operator to pierce through partitions, into interiors, etc. Discharges low velocity WaterFOG or FogFOAM.

***Long Extension Applicator.** Discharges low velocity WaterFOG in an umbrella pattern, smothering fire without causing turbulence to flammables. Excellent personnel protection is another advantage.

FF Extension Unit. Shown with Type SG-60 Nozzle. Discharges Rockwood FOAM in a solid stream or as FogFOAM. Wide angle makes it possible to cover large areas at one time.

**NOTE: The products shown here have all been Tested and Listed by Underwriters' Laboratories, Inc.*

ROCKWOOD SPRINKLER COMPANY

Engineers Water . . . to Cut Fire Losses

ROCKWOOD SPRINKLER COMPANY
Portable Fire Protection Division
1564 Harlow Street
Worcester 5, Mass.

Please send me your illustrated booklet on Rockwood fire-fighting products.

Name_____
Title_____
Company_____
Street_____
City_____
Zone_____ State_____

FILM NEWS

By Nancy Lou Blitzen, *Membership Service Bureau, NSC*

Industrial Nursing

A new film has been released for showing to the graduate nurse who contemplates a position in industry. In addition, it is also a fine film for showing to the industrial nurse.

The Opportunities of the Industrial Nurse is sponsored by the Massachusetts Industrial Nurses Association and Liberty Mutual Insurance Company. It is a 35mm sound slidefilm in color and runs 20 minutes.

The film describes the work of the graduate nurse as a member of the professional health and accident team, composed of physician, safety engineer, and industrial hygienist or chemist. It also shows the nurse actively promoting safety and accident prevention in small organizations.

It mentions the basic medical equipment needed in any firm employing a nurse, and gives standard record procedures as might be outlined by the company physician. It shows how the nurse can watch for accidents and possible health hazards in the plant, plus educating the employees in health and first aid.

These are only the highlights of the filmstrip as more details are presented in the film. It is more of a health than safety film, since health is greatly stressed.

It may be obtained for purchase or rental from the Massachusetts Industrial Nurses' Association, c/o Koletta K. Kaspar, R. N., Esso Standard Oil Company, Everett, Mass.

Construction Safety

The University of Florida has released a 16mm sound motion picture in black and white on construction safety. It is entitled *Construction Can Be Safe*, and runs 20 minutes.

The film is for supervisors and employees. It instructs the supervisor to be aware of accident hazards and for employees to be careful of their own personal safety.

It covers material handling (cranes and hoists, power trucks, etc.); hand and power tools (protective equipment and clothing guards); good housekeeping (clearing of debris and waste from receiving and storage areas, stairways, work areas); fall hazards (elevator shafts, material hoistways, wall and floor openings); proper use and construction of ladders, platforms, and scaffolding. Emphasis is placed on the wearing of hard hats and protective clothing.

This is a homemade production; no professional photographer or studio was used. The narration is good, but there is a little blurring in some parts of the film. However, the subject matter is well presented.

Prints may be obtained from the Florida Industrial Commission, Department of Industrial Safety, Tallahassee, Fla.

Attitude on the R.R.

The Union Pacific Railroad Company has a new film on safe attitude entitled, *The Days of Our Years*. It is a 16mm motion picture, in color, runs 20 minutes, and is available for television use.

"No . . . You didn't put your cigarette out!"

The film presents an unusual angle on safe attitude, as the narrator is a minister (no denomination given) who reminisces about railroad men he knew who had accidents.

Particular attention is given to the consequences of these accidents, the family of each man, and to the man himself. Each accident is traced from start to finish and the viewer is given a glimpse of the life of each man before and after the accident.

The title is taken from the King James version of the Bible, Psalms, 90: v 10, "The days of our years are three score years and ten; and if by reason of strength they be four score years, yet is their strength labor and sorrow; for it is soon cut off, and we fly away."

The moral of the film is that accidents caused by carelessness, lack of attention, or any other preventable reason, cut down the "days of our years" and increase the "labor and sorrow" of the victim and his loved ones.

Prints are available for loan from Union Pacific Railroad Co., Omaha 2, Neb. Attention Motion Picture Bureau. Purchase prints can be obtained from Dudley Pictures Corp., 9908 Santa Monica Blvd., Beverly Hills, Calif.

Addenda

Here are some corrections to listings that were not included in the 1956 *National Directory of Safety Films*.

The National Film Board of Canada has arranged to have rental prints of its motion pictures distributed from Contemporary Films, Inc., 13 E. 37th St., New York and William M. Dennis Film Libraries, 2506½ W. 7th St., Los Angeles. The films are listed as being available from International Film Bureau, Inc., and may be obtained from them.

On page N-40 of the *Directory* (Section 65) the availability basis for the film *Crash Research*, should read "ac" rather than "ab." The film is available on a loan basis from Ford.

On page N-43 (Section 73) the source 121-b should be deleted from the film, *Shooting Safety*.

B R E C K

FOUR WAYS TO PROTECT SKIN FROM INDUSTRIAL DERMATITIS

BRECK pH7 PROTECTIVE CREAM protects the hands against irritants such as lubricating oils, cutting compounds, tar, greases, rubber dust, aromatic and hydrocarbon solvents, fiberglass, paint and iron dust. It forms a non-sticky, invisible film over the skin. Breck pH7 Protective Cream is easily applied. It is easily removed with Breck Hand Cleaner or soap and water.

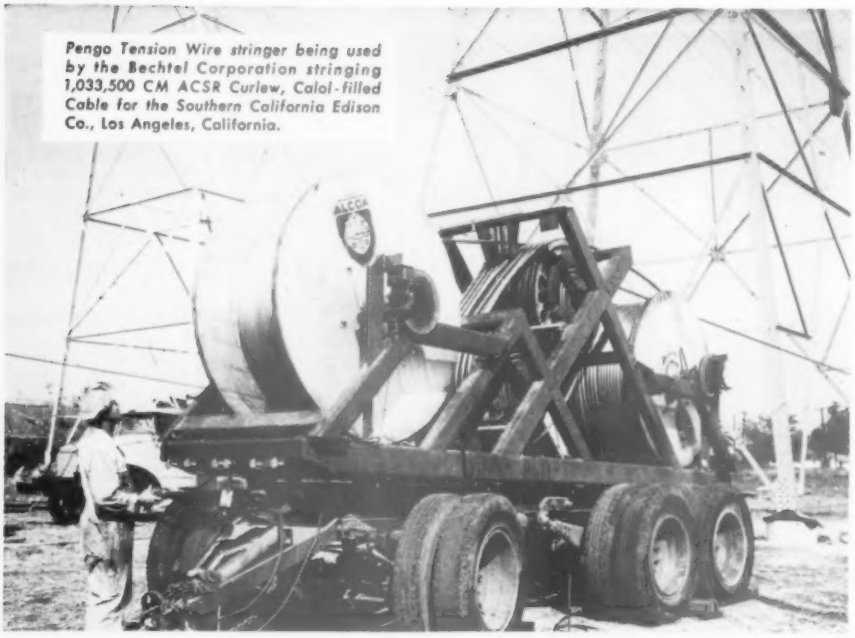
BRECK WATER RESISTANT CREAM protects the skin against the action of water and water solutions such as liquid coolants, emulsified cutting oils, mist and spray from alkali baths and plating solutions, cement and lime. It covers the skin with a light, protective film which is not slippery or sticky. Breck Water Resistant Cream has a pH value of 8.

BRECK HAND CLEANER helps eliminate the use of harsh, gritty, highly alkaline or defatting hand cleaners. It does a thorough cleansing job, yet is mild and non-irritating to the skin.

BRECK WORK CREAM is used after exposure to degreasing materials and at the end of a day's work. It substitutes fatty materials for the natural skin oils which have been removed. In this way Breck Work Cream helps keep the hands smooth, pliable and lubricated.

A Breck Industrial Preparations Booklet will be forwarded to you upon request.

JOHN H BRECK INC • MANUFACTURING CHEMISTS • SPRINGFIELD 3 MASSACHUSETS
NEW YORK • CHICAGO • SAN FRANCISCO • OTTAWA CANADA



Pengo Tension Wire stringer being used by the Bechtel Corporation stringing 1,033,500 CM ACSR Curlew, Calol-filled Cable for the Southern California Edison Co., Los Angeles, California.

The latest method of stringing conductors

- ***Safest, most economical for transmission, distribution and even secondary lines.***
- ***Its greatest savings are effected when stringing over and through energized circuits... by far the safest, too!***

Operation of the PENGO Tension Wire Stringer is almost unbelievably smooth. Because the tensioning is done on the Neoprene-Lined Bullwheels rather than on reels, conductor damage from the reels has been eliminated entirely. Due to the Neoprene lining of the Bullwheels, it is possible to use a full range of wire sizes to maximum groove capacity, which, in the case of the Model 6000-WS shown in picture, is Pheasant or 1⅜" diameter.

SMOOTH, POSITIVE CONTROL OF CONDUCTOR TENSION can be maintained at all times regardless of model or size of PENGO Tension Wire Stringer used. The large, specially designed PENGO disc brakes are mounted away from the Bullwheels to assure dissipation of the heat generated by the continuous braking action and prevent transmission of the heat to the Bullwheels.

In addition to the model shown in the picture, all series are available in low-slung trailer mounts for mountain work with separate easy-loading reel trailers.

List your requirements and send for descriptive literature and prices.

PETERSEN ENGINEERING CO.
Santa Clara, California DEPT. S

Please send me more information on the new Pengo Tension Wire Stringer.

Name_____

Firm_____

Address_____

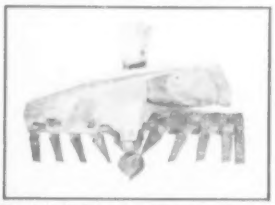
City_____ State_____

Made by the makers of the World-Famous
PENGO EARTH AUGERS

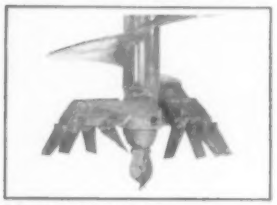
PETERSEN
ENGINEERING COMPANY
Santa Clara, Calif.

Other PENGO Products include:

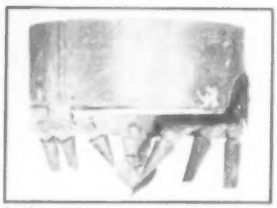
24 inch Heavy Duty Flight Auger



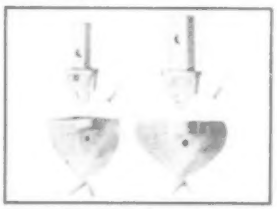
Double-Helix Heavy Duty Auger



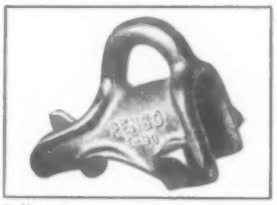
Offset Boring Head



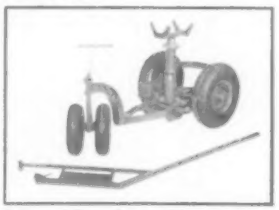
Bucket Auger



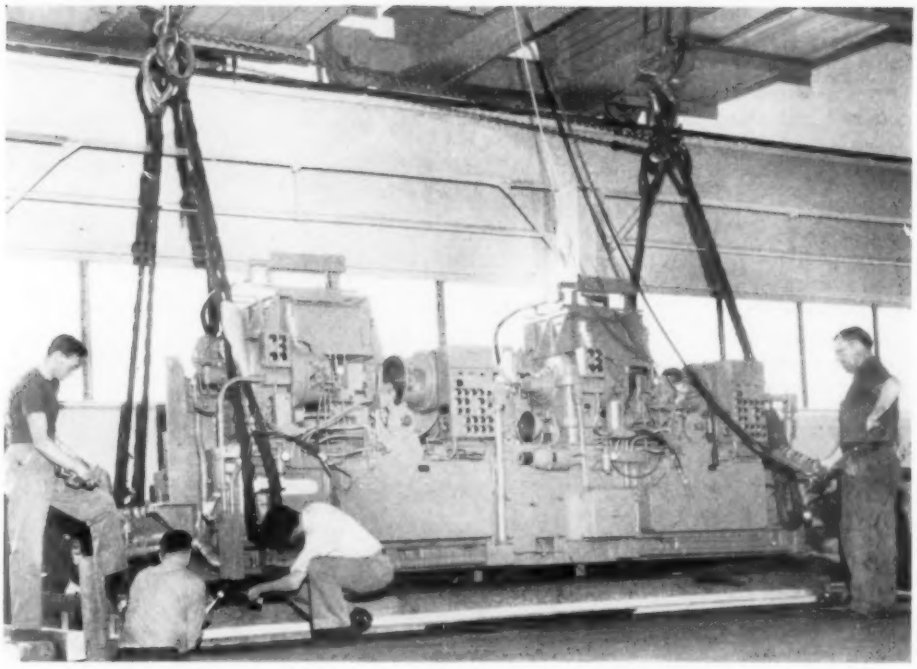
Screw Bit for Small Diameter Holes



Pulling Eye



Pole and Transformer Chariot



SUPERVISOR checks details of a difficult lift. One man spends full time maintaining chains, slings, ropes, and lifting bars.

It's a Tradition at Norton

By HUGH T. PRICE

THIS might be called a success story, but there are *no* secrets.

At The Norton Company, manufacturers of precision grinding and lapping machines, the answer lies in the fact that safety is a tradition which plays an important part in the daily thinking of all employees, from top management on down. This formula has prevented much personal suffering and financial loss to Norton employees and netted them four important awards during 1955.

The entire plant received the Liberty Mutual Award of Merit, for operating over a million manhours without a disabling injury. Meanwhile, the Grinding Machine Division was the recipient of the National Safety Council's Award of Honor, for excellent performance; Liberty Mutual Insurance Company's Award of Merit, in recognition of working well over a million man-hours without a disabling injury; and a Massachusetts Safety Council award, for the best record among heavy machinery manufacturers.

HUGH T. PRICE is Factory Manager, Norton Company, Grinding Machine Division, Worcester, Mass.

Program and Personnel

The Safety Engineering department, headed by Nelson P. Ingalls, plant safety engineer, maintains a year-round campaign, using posters, news letters and booklets. Several times each year Mr. Ingalls fortifies the campaign by speaking at the foremen's meeting, outlining the various trends on all types of accidents and acquainting supervisors with new ideas on safety which they pass on to the men.

The department also runs a well-stocked safety shoe store where employees are urged to purchase shoes at cost.

The Grinding Machine Division has inaugurated compulsory wearing of safety glasses in all sections. Success of this move is reflected in the following statistics:

Year	Number of Eye Cases
1952	348
1953	161
1954	62
1955	55

In addition to the sharp reduction in the number of cases it is important to note that the serious eye accidents have been eliminated. A Wise Owl Club chapter has been organized for workers saved from injuries because of safety glasses.

The Medical and Fire Departments work closely with the safety engineer. Fully-equipped plant hospitals, maintained by a staff of doctors and nurses, provide all facilities required to treat anything to a relatively serious

accident. The Fire Department meantime conducts regular plant inspections. Three well-trained crews, consisting of 17 men, are constantly looking for potential hazards.

The Safety Committee consists of three permanent and five rotating members. Rotating members serve for one year and are drawn from the foremen and assistant foremen.

The group meets every other week, at which time all accident reports are reviewed and the more serious ones assigned for investigation. Various problems are discussed, safety suggestions are considered and the reports of state, city and insurance company inspections are reviewed. Every two months they make a plant inspection and all findings are carefully reviewed and necessary corrective action taken.

Assistant foremen play an important part in the program. More than half of the committee is made up of these men who are constantly looking for potential hazards and stressing the importance of safety to their men.

The Housekeeping Committee has made a vast improvement in the orderliness of the plant. As a result a great many reductions in over-all injuries can be attributed to it.

The maintenance engineer is chairman of this committee which includes two foremen. Schedules are so arranged that each foreman serves for one month each year. Inspections are made weekly and conditions which require correction are discussed with the department foreman at the time. If a condition repeats itself, it is brought to the attention of the superintendent. Departments which have favorable housekeeping conditions are written up in the report, a copy of which goes to the factory manager, and a note of commendation is sent to the foreman.

CHAIRMAN of housekeeping committee calls attention to boxes outside aisle marker. Flourescent fixtures provide adequate light. Stop signs are painted on floor at intersections.

A cleaning and painting program for machinery and equipment has also contributed greatly to safety performance. Cleanliness, like good housekeeping, is essential to safety. An operator who maintains a clean, well-kept machine usually reflects this thinking in the quality of his work.

A modern plant lighting system, providing between 30 and 40 ft.-c. high-voltage fluorescent lighting at work level, aids employees throughout the plant. Thirty per cent of the light is directed upward through slits in the fixtures, giving off reflected light from the ceiling. A scheduled program of cleaning the tubes and fixtures helps to maintain the desired lighting. Regular inspections are made with a light meter and group replacement of tubes is made when the light intensity drops to the minimum established for the area.

Aisles and storage areas are marked with three-inch yellow tape, which stands out well, is easy to apply and replace. Tape has proved to outlast painted lines.

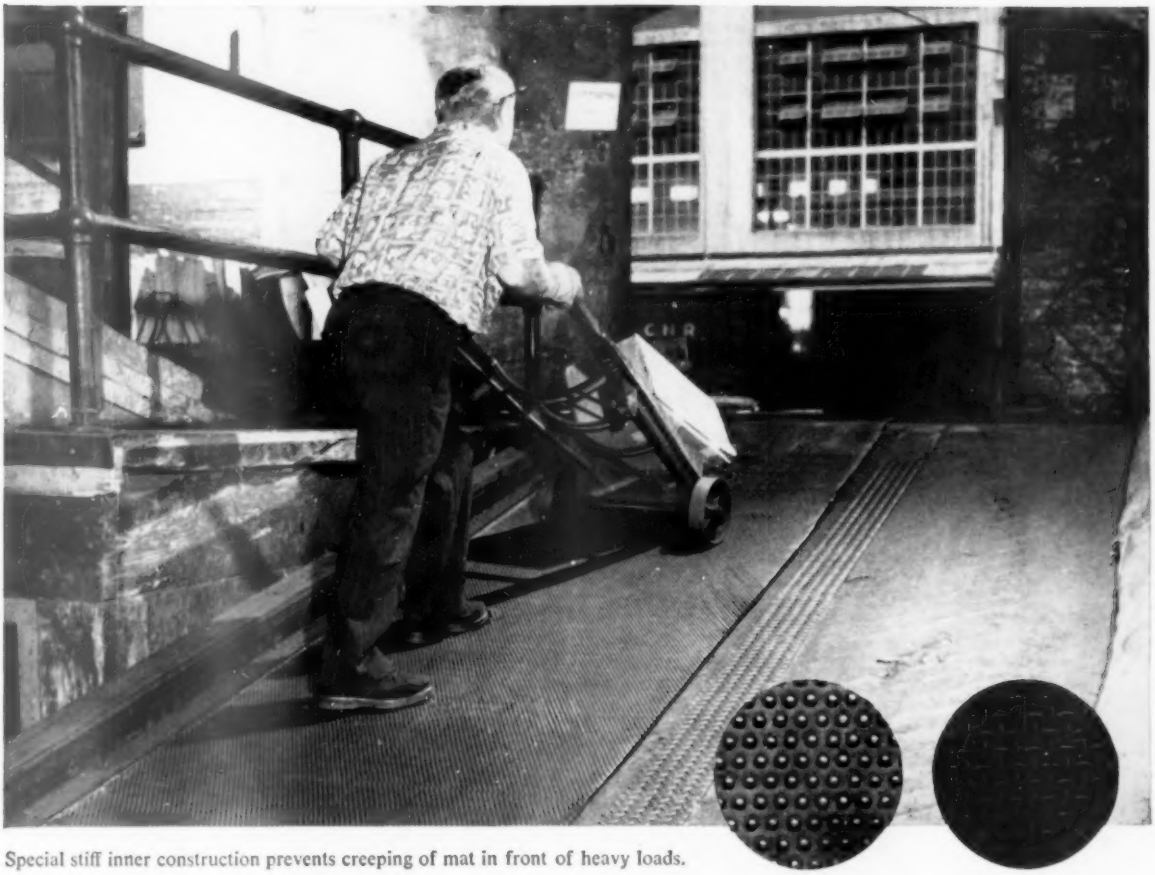
A vacuum cleaning system covers most of the cast iron machining area. Chips and dirt are easily and safely removed and the use of compressed air for cleaning machinery and castings has been

—To page 155

JAMES M. LAWSON, general foreman, and chairman of Machine Division Safety Committee, holds cutaway safety shoe as committee studies foot and eye protection.

VACUUM CLEANING SYSTEM removes chips with a minimum of handling and eliminates use of compressed air for cleaning.

FEET HAVE FIRM GRIP, NOISE IS DEADENED—on U. S. Rubber's Knob Matting



Special stiff inner construction prevents creeping of mat in front of heavy loads.

Round knob—
Style E-2304 (black)

Zeppelin knob—
Style E-2309 (black)
and Style E-2311 (brown)

Thousands of small knobs forming a pattern give this matting a skidproof surface. This high-quality, fabric-reinforced matting kills noise and protects floors from abrasion and heavy traffic. Lasts a long, long time. Specify Style E-2304.

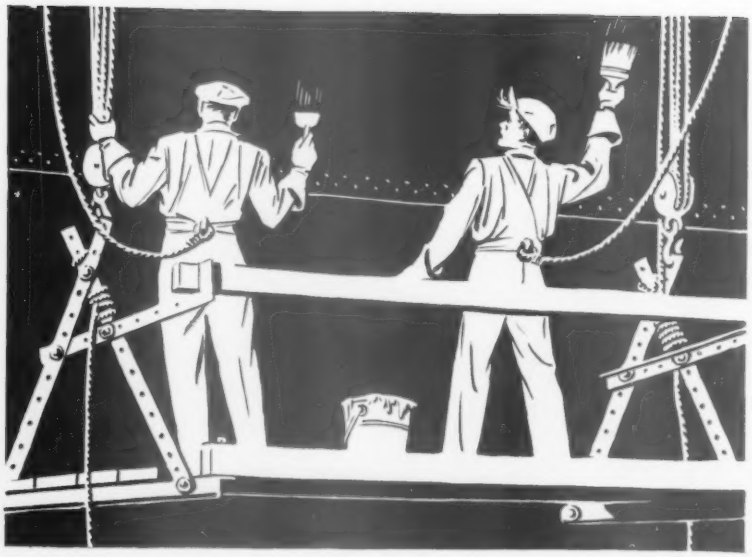
Where grease and oil are encountered or electrical equipment must be insulated, specify U. S. Zeppelin Knob Matting, Styles E-2309 black or E-2311 brown. This all-neoprene, non-slip, fire-retardant matting is resilient but sturdy. It is certified to 40,000 dielectrical resistance in accordance with A.S.T.M. specifications. Reduces foot fatigue, yet is highly resistant to abrasion.

Obtainable at any of the selected "U. S." distributors or any of the 27 "U. S." District Sales Offices—or write us at Rockefeller Center, New York 20, N. Y.

US RUBBER

Mechanical Goods Division

United States Rubber



PAINTING A TANKER. Men working on swinging scaffolds should wear safety belts with tail lines attached securely to a permanent part of the structure, not to the scaffold.

SAFETY BELTS

And the Men Who Wear Them

EVER see a window cleaner at work 15 stories above the street working without his safety belt? Or a public utility lineman working on electric power or telephone lines?

You're not likely to. Use of these protective appliances is part of their training for the job. Their belts and safety straps are made according to exacting specifications and tested regularly.

There are, however, many other occupations where safety belts and harnesses are required for protection against one of these three risks:

—Falls from high levels
—Asphyxiation in confined spaces where air may be irrespirable.
—Being buried under slides of loose materials.

Occupations requiring routine or occasional use of safety belts include:

—Structural steel and bridge workers.
—Cranemen
—Forestry workers
—Miners
—Mechanics
—Painters
—Workers entering tanks, bins and underground passages.

Two types of use must be considered in selecting safety belts—normal and emergency. Normal use involves comparatively light stresses applied more or less regularly during the course of work. These stresses will seldom, if ever, exceed the total static weight of the user, and usually they are considerably less. These are found in such operations as hoisting or lowering a man, or providing a steady support while he works.

Emergency use involves stopping a man *safely* if he should fall. Such use may occur with almost any belt. It subjects every part of the belt to an impact loading which may amount to many times the weight of the user.

Amount of such impact depends largely on three elements:

1. Weight of man
2. Distance of fall
3. Suddenness of stopping.

Of these, the last is the most important and the man as well as his belt and tail line must be considered. It is quite feasible to design and construct a belt that will withstand any stresses likely to be imposed on it in actual use.

The human body, however, is much less rugged than the belt and rope. Man is equipped with certain delicate internal organs and some rather fragile ribs. Therefore, any device which causes internal injuries or cracked ribs in arresting a man's fall is of doubtful practical value.

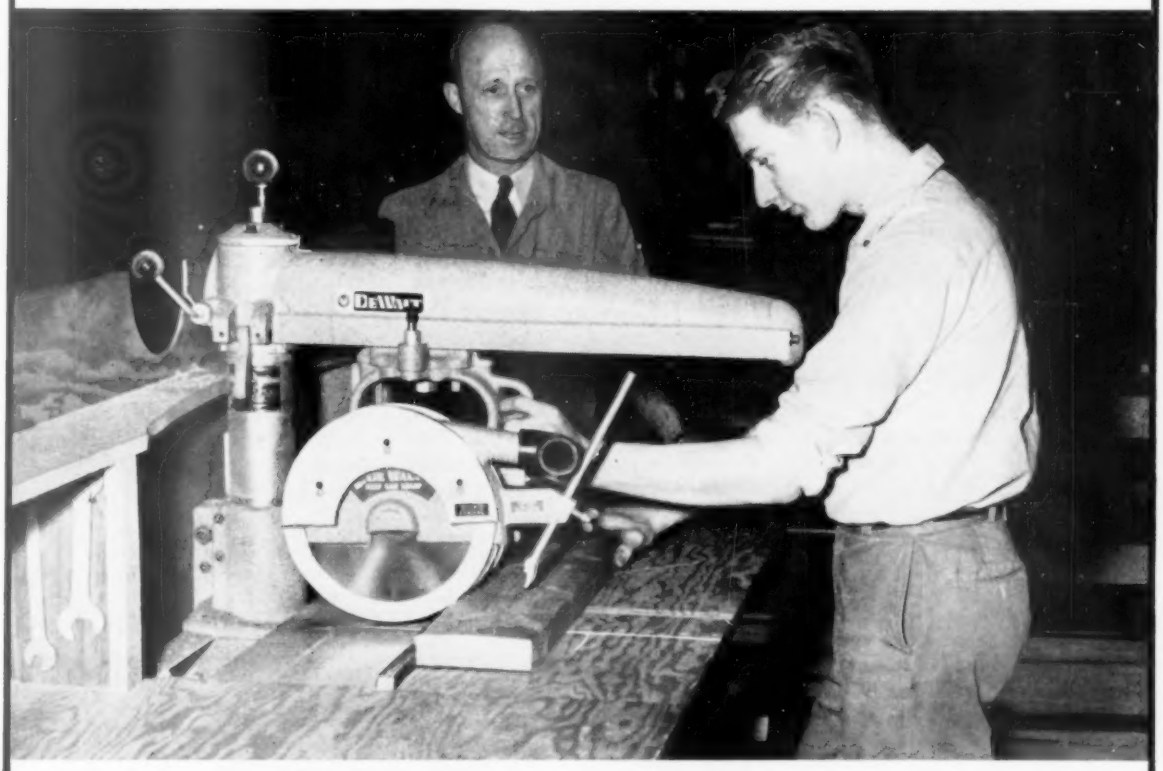
Improvement in the design of safety belts, harnesses, life lines, tail lines and anchoring devices requires specific information on the strength of materials from which the device is constructed, conditions of use, and effect of operation of the device on the human body.

Unfortunately, the general problem of improving these devices cannot be divided nicely into these three separate problems. Maximum length of tail line, construction and design of the belt itself, type of shock absorbing device, and strength and design of the

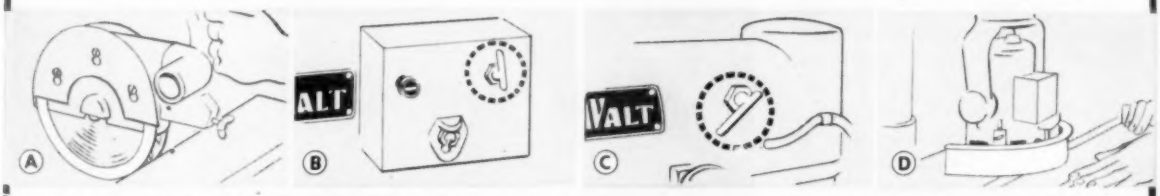
—To page 150

WHERE IT MAY be necessary to hoist a man from a lower level, the harness type of safety belt should be worn. Here an employee of Hiram Walker Inc. samples cooling and wash water being returned to the Illinois River. A guard holds the life line.

Safe cutting starts with a safe saw...



And De Walt® has the safest record in industry!



You need these exclusive operating safety features: **A**—Simpler, safer top-side cutting, with exclusive safety guard. You always see your mark and your saw. **B**—Power brake stops saw in 4 seconds for added safety. **C**—Safety key switch prevents unauthorized use. **D**—De Walt becomes tilting arbor shaper with exclusive safety guard... gives 50% more shapes per cutter. Combines 12 basic power tools, builds into workbench... gives safer straight-line handling.

Do *your* plant cutting with an *AMF De Walt*—preferred in home, school, and industry for accuracy, versatility ... *and the safest record of performance.* Arm raises, lowers, swings 360°. Motor and saw ride on arm, rotate 360°, tilt downward past 90°. Powerful direct-drive motor accommodates any circular tool, saves cost of separate machines. Enjoy the efficiency *and* safety only a modern De Walt offers.

A wide range of sizes... from 9" to 20", ¾ hp to 10 hp ...for construction, maintenance, crating, pattern shops, production lines—*all* industrial cutting. From just $239 up.

See your supplier or send for FREE BOOKLET.

Another AMF Product
DE WALT POWER TOOLS

De Walt Inc., Dept. NSN-56-9, Lancaster, Pa., Subsidiary of AMERICAN MACHINE & FOUNDRY COMPANY

☐ Please send FREE Booklet on Job-Tested Safety Cutting Methods
☐ Send information on FREE 16mm sound film (23 min.)

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PERSONALS

News of people in safety and related activities

Name Secretary for AMA Industrial Health Council

The American Medical Association has announced the appointment of DR. B. DIXON HOLLAND as secretary of the AMA Council on Industrial Health, effective July 16, 1956.

Dr. Holland retired June 30 as a colonel in the U. S. Army Medical Corps. He Succeeds Dr. Carl M. Peterson who died September 27, 1955, of injuries received in a plane crash.

At the time of his retirement, Dr. Holland was serving as medical director of the Army Federal Civilian Employees' Health Service, and chief of preventive medicine and assistant surgeon at Aberdeen Proving Ground, Md.

Dr. Holland was graduated from the University of Texas Medical School, Galveston in 1934. He holds a degree of Master of Public Health from Johns Hopkins University. He was associated with the Army Industrial Hygiene Laboratory (now Army Environmental Health Laboratory) as assistant commander from June 1947 to July 1949, and has served as surgeon of various commands in the Caribbean and in the U. S. occupied zone of Germany. In the office of the Surgeon General of the Army, he was chief of the Occupational Health Branch in the Preventive Medicine Division.

RAYMOND M. HILL, deputy chief, Los Angeles City Fire Department, has been appointed chairman of the National Fire Protection Association's Committee on First Aid Fire Appliances.

The committee, reorganized under Chief Hill's chairmanship, is responsible for the creation of NFPA standards on the selection, installation, and maintenance of fire extinguishers.

Authoritative guides to assist the public in distinguishing between worthwhile fire extinguishers and substandard extinguishers will be developed by the reorganized committee. Standards on almost all phases of fire safety are prepared through technical committees of the NFPA.

Appointment of DR. HAROLD J. MAGNUSON as chief of the Occupational Health Program of the Public Health Service, U. S. Department of Health, Education, and Welfare, has been announced. HENRY N. DOYLE becomes assistant chief.

Dr. Magnuson was formerly chief of operational research for the Venereal Disease Program of the Public Health Service. Previously, he had served as director of the Venereal Disease Experimental Laboratory at Chapel Hill, N. C., and research professor of Experimental Medicine, University of North Carolina School of Public Health. Besides instructorships in medicine at the University of Southern California and Johns Hopkins University School of Medicine, Dr. Magnuson has held the position of assistant director, Laboratory of Experimental Therapeutics, Johns Hopkins University.

Born in Halstead, Kans., on March 31, 1913, Dr. Magnuson received his A. B. degree in 1934 and his M. D. in 1938 from the University of Southern California. In 1942, he was awarded the degree of Master of Public Health by the Johns Hopkins School of Hygiene and Public Health. He received a commission in the Public Health Service in May 1941.

Chicago Gets Postal Ambulance

EDWARD B. LANDRY (left), director of safety and health for the Post Office Department, accepts keys and title for the country's first postal ambulance from Chicago Postmaster Carl A. Schroeder. Looking on are (left to right) C. S. Raymond, regional vehicle manager, and Robert Justus, regional director.

CHICAGO POSTAL EMPLOYEES consumed enough soft drinks in recent years to pay for the nation's first ambulance designed specifically for postal emergencies.

Profits from vending machines and employee outings paid for the snappy red, white and blue vehicle which was dedicated June 19 when Edward B. Landry, director of safety and health for the Post Office Department, represented Postmaster General Arthur E. Summerfield in accepting the keys and the title from Chicago Postmaster Carl A. Schroeder.

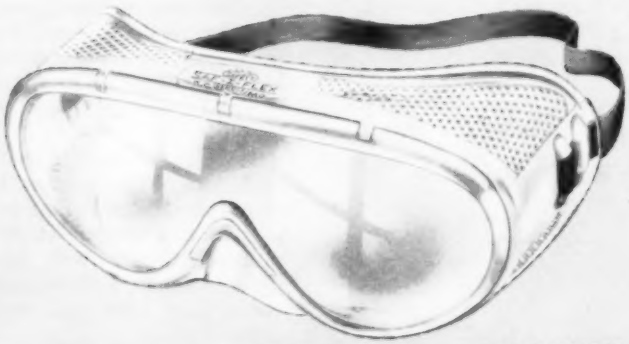
The addition of the ambulance

you name the hazard

- *IMPACT*
- DUST
- *GLARE*
- CHEMICALS

then select the USSSCO all-plastic EYEWEAR
best suited to meet your needs

SAF-I-SPEC Maximum "spectacle-type" protection against *impacts*, plus smart, modern styling. Weighs less than an ounce. Rugged frame in choice of colors, bronze or slate blue. With or without side shields. Clear or green replaceable lens.



SAF-I-FLEX Series 28
All-purpose eye protection against *impacts*. Fits over most personal glasses. Soft vinyl frame — clear or green replaceable lens.

AIRFLOW SAF-I-FLEX Series 29
Guaranteed not to fog. Maximum eye protection against *impacts*, with new "wrap-around" metal mesh ventilation (no air traps). Extra wide vinyl frame fits over *all* personal glasses. New correct pantascopic angle of lens for *full vision*. Clear or green lens.

SAF-I-CHEM Maximum eye protection against *acids, alkalis, chemical splashes, dust, impacts.* Frame of soft vinyl, yellow or clear.

GENUINELY COMFORTABLE

Here is the most comfortable eyewear that money can buy! We guarantee that all eyewear shown on this page, when properly adjusted, will be truly comfortable.

All lenses replaceable without tools.

Pioneers in Modern Industrial Eye Wear

All models meet Federal specifications for Optical Qualities, Impact Resistance, and Strength of Materials.

USSSCO products are developed, manufactured, and sold direct to the user by the United States Safety Service Company, through a staff of trained, full-time service engineers. Look in your phone book Yellow Pages for nearest sales office, or write us in Kansas City.

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BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

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supplements an already elaborate medical unit in the Chicago Post Office. Three physicians are assisted by nine male nurses, who are available 24 hours a day. Equipment includes an examination room, treatment room, drug room, and male and female wards for bed patients. Also provided are a hospital-type sterilizer, resuscitator, wheeled litter, stretchers, wheel chair, surgical instruments, and an eye-testing device.

The ambulance is equipped with a physician's emergency bag, blood pressure instrument, metal leg and arm splints, stethoscope, tourniquet, arm slings, blankets, and a resuscitator.

Twelve men have been selected for special training as ambulance drivers. Among them are former army and private ambulance drivers who will be part of the training staff. William C. Cousins, safety assistant to the motor vehicle service, will be in charge.

Mr. Landry, president of the American Society of Safety Engineers, is responsible for the staff planning and development of a safety and health program for more than 500,000 postal system employees and for the safe operation of 85,000 motor vehicles and 41,000 post offices, postal transport terminals and air mail fields.

Miners' Lamps Protect Bridgemen 552 Ft. Up

BRIDGE BUILDERS working on the Mackinac Bridge wear miners' caps mounted on hard hats. Conventional electric wiring would be hazardous and impractical in the dark interiors of towers. Life vests protect workers during boat trip.

ELECTRIC CAP LAMPS, usually associated with miners at work far below the surface of the earth, are also being used by bridgemen high in the air on the superstructure of the Mackinac Bridge which will link the upper and lower peninsulas of Michigan. Hard hats, safety belts and life vests are also standard equipment on this job.

The four 552-ft. towers from which the cables for the 8614-ft. suspension bridge will be supported, are erected from the "inside out." Riveting and welding is done in dark, confined cells where conventional lighting systems cannot be installed.

Good illumination is essential on the job because every web plate and rivet must be installed perfectly, according to D. C. Kline, manager of the project for the American Bridge Division of the United States Steel Corporation.

Use of dry cell batteries for the work would be neither practical nor economical. These are not always dependable under such conditions and the light provided would not be adequate. In addition, failure of a lamp on the job offshore could cost the services of the man using it.

The American Bridge official pointed out that it would be impractical to use electric wiring on such a project because of the remote location of the towers, plus the fact that bridgemen work in areas where stringing of extension lines would create a footing hazard. Abrasive wear on wiring insulation could cause short circuits resulting in serious injury to the workmen.

Edison electric cap lamps, powered by nickel-iron-alkaline batteries, are used on the job. The lamps are supplied by Mine Safety Appliances Company of Pittsburgh.

The lamp headpiece fits on each man's protective helmet, which American Bridge provides as standard equipment. This arrangement frees both hands of the bridgemen, making their individual jobs safer and more efficient.

At the end of the working shift, lamps are checked in at the contractor's lamp house, much in the same manner as the practice at coal and metal mines. Lamps are placed in charging racks after every shift to assure brilliant illumination over the full 10-hour work period.

Bridgemen also wear life vests of seamen. To reach the towers each morning they must ride personnel boats across the choppy waters of the Straits, and at times some of their work at the towers is over or near the water.

The Mackinac Bridge, when completed in 1957 at a cost of $100 million, will be the longest suspension bridge in the world, 8,614 feet. The length of the main span between the towers will be 3,800 feet, and the entire length of the bridge and approaches will be more than five miles—26,444 feet.

The bridge will carry four lanes of traffic and it will take about 10 minutes to cross the Straits between Mackinac City and St. Ignace.

PAX Deodorant CREAM SOAP gives you *TRIPLE SAVINGS*

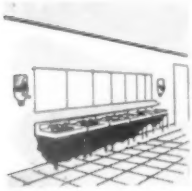
and its LANOLATED!

If you're now using bar or liquid soaps to remove light industrial and office soils change to PAX Deodorant Cream Soap. You'll find greater economy, effectiveness and safety when you do!

Enjoy MORE SAVINGS!

CUT HAZARDS . . . There's no chance of slipping on bits of discarded bar soap left about shower areas; no more skin irritations from harsh liquid soap when you change to PAX Deodorant Cream Soap!

ELIMINATE WASTE . . . No liquid to leak from dispensers; no wasted bar soap to be thrown away when PAX Deodorant Cream Soap is used!



SLASH MAINTENANCE COSTS . . . Fewer Dispenser locations required . . . less maintenance of washing areas needed when you switch to PAX Deodorant Cream Soap!

Enjoy MORE QUALITY!

Men and women, in plant and office, enjoy using mild, fragrant PAX Deodorant Cream Soap. Lanolin and other added emollients make it *soothing* to the skin, and this mild PAX soap will lather *quickly* into abundant suds—even in the hardest water.

PAX is pearlescent, "Ocean Spray" white, and does not darken with age. It is formulated to the same standards as the finest cosmetic grade soaps and shampoos. Its gentle shampoo-like action in the shower leaves the skin clean and refreshed. The active deodorizing agent effectively counters bacteria generally present in perspiration; thus it combats unpleasant body odors.

WRITE US — OR ORDER FROM YOUR JOBBER — TODAY!

The one gallon throw-a-way "Dispenser Can" of PAX Deodorant Cream Soap mounts on the PAX C-P Dispenser. When empty, discard the can and replace with a fresh, full can which is installed *right on the dispenser!*

The PAX C-P Dispenser holds and dispenses one gallon of *any* powdered, granulated, paste or *cream* skin cleaner. And, it can be mounted in *any location!*

RESEARCH - PROGRESS integrity PAX VALUE - SERVICE

PAX

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LOOK FOR THE **PAX ROOSTER** AND THE **PAX SEAL.** THEY ARE TRADEMARKS FOUND ONLY ON PRODUCTS OF HIGHEST MERIT.

G. H. PACKWOOD MANUFACTURING COMPANY

Manufacturing Chemists

1553 TOWER GROVE AVENUE • ST. LOUIS 10, MO.

COMING EVENTS

in the safety field

Sept. 13-14, York Harbor, Me.
Twenty-ninth Annual Maine State Safety Conference (Marshall House). Arthur F. Minchin, secretary, Department of Labor and Industry, State House, Augusta, Me.

Sept. 17-19, Cleveland, Ohio.
Eighteenth Annual Ohio State Safety Conference and Exhibit (Hotel Carter). H. G. Hayes, secretary-treasurer, Suite 514, 2073 East Ninth St., Cleveland 15, Ohio.

Sept. 25, Midland, Tex.
Regional Conference. (Scharbauer Hotel). A. J. Bay, conference chairman, Texas Safety Assn., Inc., 830 Littlefield Bldg., Austin, Tex.

Oct. 11-12, Chicago
Seventh Annual Noise Abatement Symposium, (Sherman Hotel). Guy J. Sanders, chairman, NNAS, c/o Armour Research Institute, Illinois Institute of Technology, 10 W. 35th St., Chicago 16.

Oct. 22-26, Chicago
Forty-fourth National Safety Congress and Exposition (Conrad Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Nov. 8-9, Columbia, S.C.
Nineteenth Annual Accident-Prevention Conference (Hotel Jefferson). J. D. Watson, Jr., safety engineer, South Carolina Industrial Commission, P. O. Box 539, Columbia, S.C.

Dec. 10-11, New Orleans
Louisiana Safety Association Conference (Roosevelt Hotel). Charles E. Doerler, secretary, Louisiana Safety Association, P.O. Box 1148, Shreveport, La.

Jan. 17-18, Milwaukee
Mid-Winter Safety Conference and Exposition. (Hotel Schroeder). R. W. Gillette, executive secretary-treasurer, Wisconsin Council of Safety, 1 West Wilson St., Madison 2, Wis.

Mar. 18-22, New York
Twenty-seventh Annual Greater New York Safety Convention and Exposition. (Hotel Statler). Paul F. Stricker, executive vice-president, Greater New York Safety Council, 60 E. 42nd St., New York 17.

Mar. 18-19, Boston
Thirty-sixth Annual Massachusetts Safety Conference. (Hotel Statler). Bert R. Harmon, director of activities and information, Massachusetts Safety Council, 31 State St., Boston 9.

Mar. 18-20, Los Angeles
Fourth Annual Safety Congress and Exhibits. (Ambassador Hotel). Don Perkins, director, public relations, Greater Los Angeles Chapter, NSC, 610 Main Street, Los Angeles 14, Calif.

Manufacturer Equips 300 Cars With Safety Belts

SAFETY SEAT BELTS are being installed on the cars of more than 300 field men, product engineers, divisional and regional managers by Behr-Manning Company of Troy, N. Y., a division of Norton Company and manufacturer of coated abrasives and pressure-sensitive tapes. In addition, the kits are being offered at cost to the firm's more than 2,000 other employees.

As developed by Wilbur E. Kidder, Behr-Manning safety manager, the program is designed to make the installation as easy as possible for field men. Kits are shipped directly to each field man by the belt manufacturer, and Behr-Manning forwards a check for $5 to each man to cover the cost of installation. Kits include two front seat belts, a channel bar to which they are fastened, and boltage to attach the bar to the car frame. A third front seat belt, and belts for rear seat passengers, are furnished on order.

The company is reimbursing field men who had installed safety belts at their own expense. Within a few weeks after the belts were made available, more than 95 per cent of the company's field force had ordered sets for the front seat.

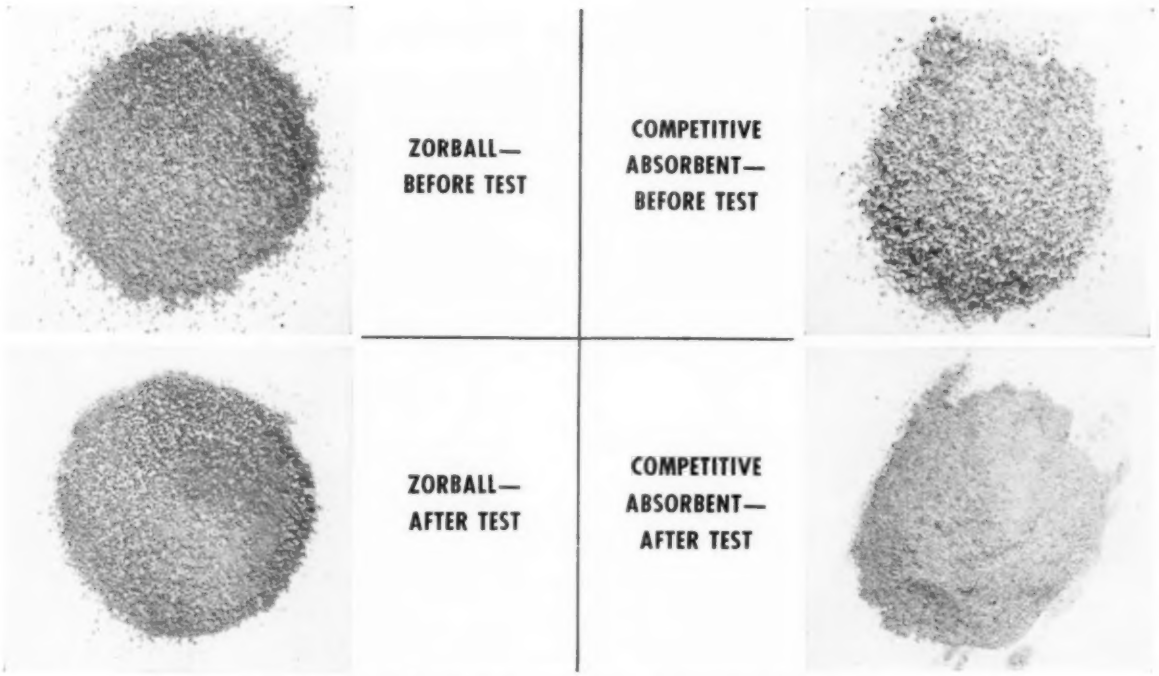
Some people, I hear, have read so much about the bad effects of drinking that they've decided to give up reading.

Two cowboys were talking one night in a bar and the conversation went like this:

First Cowboy: "My name's Tex."

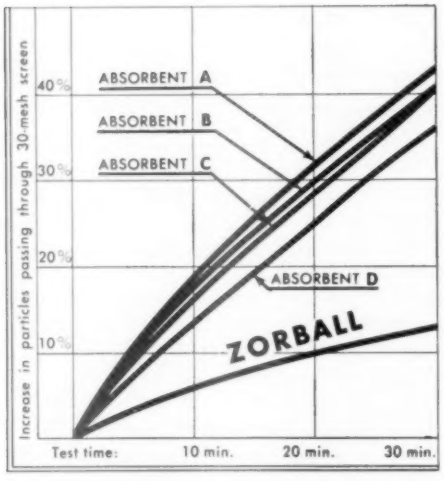
Second Cowboy: "You from Texas?"

First Cowboy: "Nope, I'm from Louisiana, but who wants to be called Louise?"



Laboratory abrasion and crush test made on ZORBALL and competitive floor absorbent. *Top:* Both look very much alike when new. *Bottom:* But after 30-minute test, see the difference! ZORBALL is still granular, skidproof. Competitive absorbent is a powdered dust!

Crush tests prove Zorball Floor Absorbent resists breakdown longer, keeps floors safer!



Graph of abrasion-crush tests using ZORBALL and four other leading floor absorbents. Curved lines show rate of breakdown, prove ZORBALL stands up best under severe punishment!

Here's dramatic proof that Wyandotte ZORBALL is the safest, lowest use-cost floor absorbent you can buy . . . a laboratory test that duplicates the crushing that absorbents actually receive "on the job."

ZORBALL is safest, because its rugged, *angular* particles resist breakdown. ZORBALL is nonflammable; absorbs oil, grease, water, paint, ink, and chemicals. ZORBALL retains its anti-skid properties under heavy traffic or extremely wet conditions without mudding, caking, or dusting. ZORBALL lasts longer, goes farther, costs less to use!

For free sample and full data, clip and mail coupon. Do it today! *Wyandotte Chemicals Corporation, Wyandotte, Mich. Also Los Nietos, Calif. Offices in principal cities.*

Wyandotte Chemicals Corporation
Wyandotte, Michigan

☐ Send FREE sample and data on ZORBALL.

☐ Have representative call.

Name _____

Firm _____

Address _____

City _____ Zone _____ State _____

Wyandotte CHEMICALS
J. B. FORD DIVISION

Congressional Committee Studies Traffic Safety

CONGRESSIONAL Sub-Committee visits National Safety Council headquarters seeking information on traffic control and accident prevention. From left to right: Congressman Samuel N. Friedel, of Maryland; Congressman Walter E. Rogers, of Texas; Congressman Kenneth A. Roberts, of Alabama; Congressman Paul Schenck, of Ohio; Martin W. Cunningham, of the Committee staff, and recorder are listening attentively as W. G. Johnson, assistant general manager of the National Safety Council, outlines skyrocketing travel trend and reduced death rate since 1925.

Simple Extinguisher Needed, Says Fire Chief

WHAT THIS COUNTRY needs is a good fire extinguisher operated by simple, "natural" methods, good enough to stop a fire starting in any ordinary flammable materials in your house—and clearly marked with an expiration date like the one on a flashlight battery, a Boston fire chief says. The public, he contends, is paying "for fire safety it does not get."

Edward N. Montgomery, long in charge of the prevention division of the Boston Fire Department and now Fire Chief of Boston, told the National Fire Protection Association:

"In the excitement of a fire not one person in a hundred will stop to read any directions on an extinguisher."

"John Q. Public," says Chief Montgomery, "has personal experience with a serious fire hazard only once in a lifetime."

"How can we expect him to remember all about all types of extinguishers and the kind of fire that each one extinguishes best?"

"How can you teach him sales resistance so that he will not succumb to the wiles of a gyppo advertising that makes everything sound so simple—one good extinguisher for all kinds of fires, lasts forever, only $1.94!"

Educating the public to use different kinds of extinguishers on different fires, he adds, "presents a very difficult problem even though in reducing all kinds of fires to three classes we are already guilty of gross over-simplification . . . the public has no occasion to deal with anything except fires in ordinary combustible materials and fire involving flammables or grease."

Asserting "every extinguisher, to be reliable, requires periodic checking, rechecking, or inspection," Chief Montgomery says that outside the fire protection profession "who else ever reads the fine print on a label and knows what has to be done to keep the extinguisher ready for use?"

Legal technicalities might stand in the way of certain desirable laws calling for fire department supervision and servicing of all extinguishers, he says.

"But," he adds, "we could at least follow the example of the dry battery and film manufacturers with a conspicuous label: 'Not good after June 1, 1957'."

Chief Montgomery says now that so many better extinguishing agents are available," he would favor substituting other agents for carbon tetrachloride in extinguishers.

Weak points of that liquid, originally introduced as an extinguishing agent for gasoline and oil fires, he said, are :

"Corrosion of extinguisher parts when even slightly contaminated by water, loss by leakage or evaporation, loss by use as a cleaning agent, or to start wet automobile engines, and low extinguishing effectiveness as compared with other agents, particularly on fire in ordinary combustible materials. Water is cheaper and a lot better for the average fire."

Protect Your Capital Investment against Fire

. . . use spark-resistant Ampco Safety Tools in hazardous locations

Plants, equipment, and inventories cost a lot of money, but human life is priceless. With so much at stake, many companies rely on Ampco Safety Tools for protection and improved worker morale.

Ampco Safety Tools don't give off dangerous hot sparks. Yet, they are hard enough and strong enough to stand up under practical service conditions. Factory Mutual Laboratories and other safety authorities approve them for use wherever there are dangerous, inflammable liquids, explosive gases, dusts, or vapors.

An investment in Ampco Safety Tools pays big dividends in fire prevention. So protect your plant and your people — select the tools you need from more than 400 different items. Write for our new catalog ST-10.

AMPCO METAL, INC.
Dept. NS-9, Milwaukee 46, Wisconsin
West Coast Plant • Burbank, California
In Canada . . . it's Safety Supply Company, Toronto, Ontario

AMPCO®

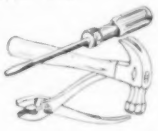
THE METAL WITHOUT AN EQUAL

T-19

How to choose *Safety Tools*

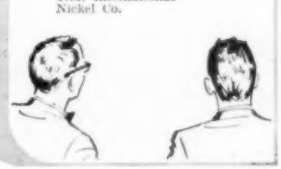
For tools subject to impact and/or torque — specify Ampco Metal Tools.

For tools that have cutting edges or gripping teeth — specify Ampco Beryllium Copper Tools.



For tools to be used in the vicinity of acetylene or similar gases, specify Ampco Monel* Tools.

*T.M. International Nickel Co.



Built-in Safety —*From page 19*

load plus two feet provided passing zones are established at intervals of from 150 to 200 feet. One-way traffic aisles are receiving increased attention in industry and should be encouraged.

The aisle should be marked by lines of width and color—safety orange preferred. Permanent markers such as metal disks are also suitable. The floor surface should be free of any deformations, and kept clean at all times.

The surface material should be suitable to the needs of the traffic loads transported. Aisles should be well lighted and, if not lighted at night by general lighting, should be illuminated by night lights for the benefit of service employees or off-shift workers. If aisles are designed as emergency passways, they should be marked by regulation exit markers.

Aisles should not be looked upon as luxurious use of valuable floor space. They are as much a facility as any material-handling device in the plant and should be given at least the same consideration. Don't lay out your main traffic aisles in such a manner that persons or vehicles approaching from doorways or side aisles are exposed to possible collision. Keep doorways and approaches recessed and junction points free of obstruction to traffic view.

Stairs are always a potential hazard. Someone once remarked that there has been no improvement in the design of stairways in 5,000 years. This is perhaps sardonic for we do have electric stairways which have a remarkable safety record. However, the point is well taken, for the safety of stairways is a problem. Wherever possible it is best to eliminate them.

When this is not feasible, they should be designed for maximum safety. Some features to keep in mind are adequate width, hand rails on each side and one in the center if the stairs are wide. Risers should be of nominal dimension and treads sufficiently wide. A non-slip surface, particularly at the nose, is desirable.

Landings should be spaced at generous intervals. If located outdoors, the stairs should be designed for quick and easy cleaning during inclement weather. Radiant heat can be considered in the design of concrete steps to keep them clear of snow and ice.

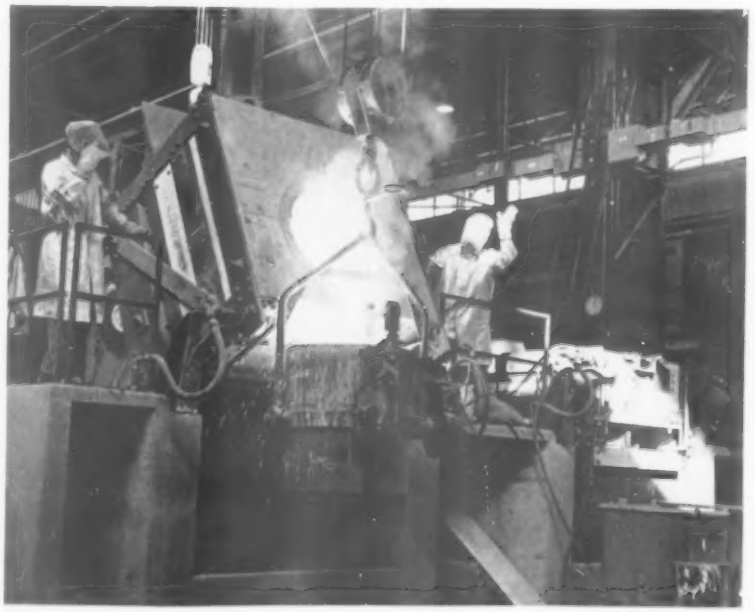
Elevators. When planning movements by elevator, it is extremely important that it not only have sufficient capacity to carry the gross load but also be structurally designed to accommodate unbalanced or pin-point loads. For example, a 10,000 lb. elevator floor might collapse if the 10,000 lb. load is distributed over only four small wheels of a truck. The elevator should also be of suitable design and construction to operate smoothly and to level accurately at each loading and discharge point. Care must be exercised to avoid the possibility of load-shifting while the elevator is in operation.

Approaches must be free of obstructions at all times. Doors should be designed so as to require that they be closed while the elevator is in motion or improperly leveled at a landing.

Ramps are very useful when slight differences in floor elevations must be negotiated by either pedestrians or vehicles. However, they should not exceed 10 per cent in grade for good practice if used by industrial vehicles. They should have a good, hard surface and be kept clean and in good maintenance condition. Hand rails at the sides are a good safeguard. Radiant heating on outdoor ramps is a good investment. Curbs should be provided if vehicular traffic is planned.

Floors, particularly in multi-story constructions, should be of adequate structural strength. The floor surface should suit the occupancy and traffic conditions. If this provision is observed, any sound structural material will provide a good floor. The problems arising with most floors stem from misapplication and abuse.

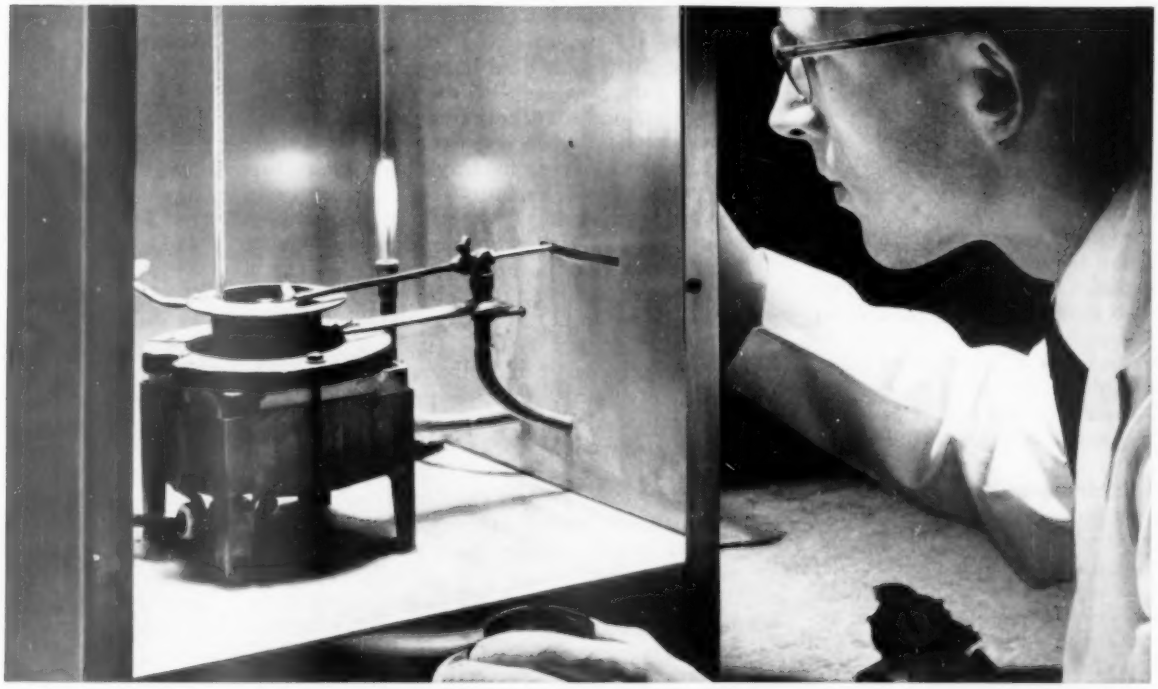
Floors should be kept free of tripping hazards and be provided with proper drainage if subject to liquids. Where the floor above serves as the ceiling for the room below, thought should be given to protection from dust, dirt, leakage, spattering and similar haz-



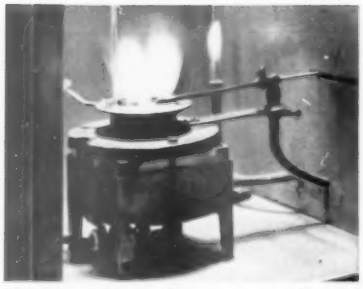
NOT MEN from Mars, but technicians pouring a heat of special alloy in the new Westinghouse Metallurgical Laboratory at Blairsville, Pa. Note special protective devices and the design of the melting floor to permit maximum protection to the operators.

Dow . . . industry's most complete line of chlorinated solvents

DOW



CHLOROTHENE has no flash or fire point as tested by the Cleveland Open Cup Method.



Many petroleum solvents commonly used for cold cleaning have *low* fire and flash points, and present a hazard in plants.

Hold flash and fire dangers to new lows with safer, stable CHLOROTHENE

Both all-around-the-shop and highly specialized cold solvent needs can be met more *safely! How?* By using versatile CHLOROTHENE*, the most efficient, fastest-working cold degreasing solvent you'll find in a month of Sundays. *Why?* Take another look at the pictures on this page; CHLOROTHENE has *no* flash or fire point.

What is it? CHLOROTHENE is Dow Inhibited 1, 1, 1-Trichloroethane. *Who* can use it? Any shop that cleans by spray, dip, wipe or bucket methods. Because CHLOROTHENE has low corrosive effects, it can be used with any common metal.

When can your Purchasing Department get this proved safety solvent? Right now! *Where?* Why, from your regular Dow distributor. He's no doubt already supplying you with such other stabilized, special-use solvents as DOW TRICHLOROETHYLENE, PERCHLOROETHYLENE and METHYLENE CHLORIDE. For more detailed information on any or all of these superior solvents, please return coupon to THE DOW CHEMICAL COMPANY, Midland, Michigan. **Trademark*

THE DOW CHEMICAL COMPANY, Dept. 5-947-FL, Midland, Michigan

☐ Send technical information on your solvent

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ards that might result from the occupancy above.

Obstructions. Every factory has its share of obstructions. Pipes, conduits, drains, valves, fire apparatus, heaters, etc., are a necessary part of the plant structure yet are often a nuisance or even a hazard. It is not too difficult to locate these obstructions in inconspicuous places when the plant is being laid out. Also, proper shrouding can eliminate much of the eyesore effect and hazard potential. In planning the layout, each space-occupying fixed object should be carefully provided for to make sure that there will be a minimum of interference with persons or materials. Head room is of particular importance.

Equipment Arrangement and Guarding. Arrangement of equipment within the plant is probably the function which most persons look upon as the plant layout engineer's predominant field of operation. This is largely true, and it is also the one field in which he can plant the most "booby traps" or eliminate them.

It is a cardinal principal that the layout engineer should determine the exact requirements of each work station and then make adequate provision for each space occupying item. This space factor may be fixed, as in the case of an item of equipment, or it may be a variable, such as service access, material clearance, temporary storage, or maintenance provision. It is the failure to provide the proper space factor that germinates accidents.

While the plant layout engineer cannot be held responsible for the failure of supervision or operators to utilize space as planned, he can anticipate changing conditions and provide for normal requirements. Since statistics show that about 40 per cent of all industrial accidents are traceable to some source of plant layout or material-handling defect, this is a very fertile field for safety development. Proper work station layout will do much to reduce these accidents. Here are a few points worth remembering:

1. Always allow enough space for efficient operation and safety. But do not allow too much space as this is wasteful and leads to poor housekeeping and ultimate hazards.

2. Be sure to lay out the complete work station instead of only the major item of equipment.

3. In planning the work station, be sure to provide for all necessary handling and storage equipment so that the operator can work safely as well as efficiently.

4. While most machine tools are provided with safety guards by the manufacturer, the special application by the user, the addition of auxiliaries, the requirements of installation may create the need for additional guarding. Be sure your work station layout provides for it.

5. Always have the safety engineer approve the layout before installation is started.

Painting and Lighting. In the past 10 years we have learned much about the value of color dynamics and compatibility of painting and lighting.

While we may not realize it, the average operator's eyes work just about as strenuously as his hands in the course of a day's work. In yesteryears we took cognizance of abuse to hands and backs and provided mechanical aids to aid and protect them. We protect eyes, too, from injury but we have done far too little to relieve them from physiological injury—or more commonly known as "eye strain."

The greatest aid to combat this usurp of eyesight is correct light and color. Your plant "see-ability" problem, of course, requires local study but the rewards are well worth the efforts. With proper lighting facilities, accidents will be reduced, productivity will rise and the work force will be generally more content, for eyestrain is a source of many ills and much fatigue. A tired worker is a careless worker. In planning the layout of your plant, give thought to:

1. The level of illumination required at the work station for good "see-ability."

2. The quality of light as well as its quantity.

—To page 125

Won't Happen To Me!

What's with these jokers who think they are immune from mortal mishaps—want to limit their knowledge to their own experience—and won't believe anything unless they were in on it?

They are the ones who refuse to change their unsafe ways by saying, "I haven't been hurt yet."

For sure, you can't believe everything you're told—you have to figure out the other guy's angle. But, how in the heck can a guy have an angle when he just urges you not to hurt or kill yourself!

You can't rely on hearsay about dames because some guys tend to overstate their achievements. You can't rely on "the dope" about horses because nobody knows the horses' plans. The stock market is subject to fluctuations for whimsical reasons, and you can't rely on the capricious nature of the weather.

But, we can benefit by observing how others goofed!

We don't do things now as they did 50 years ago because a lot of people got into trouble, experimented with changes, and determined better ways to do them. Why be so old fashioned as to pull the same dumb stunts Adam did? That's as bad as stumbling into the same snake pit twice.

The guy was right who, when asked if he would make a practice parachute jump, answered, "Darned if I'm gonna practice anything you have to do perfect the first time." The odds aren't a lot different in many of our everyday activities, so that same philosophy should be followed by more people at work, at home and on-the-road.

So, Mac, why argue with safety precautions? They were developed from experience—of the bloody, heartbreaking, family-shattering type.

Everyone knows you're better than the other guy—and it won't happen to you—so why chance getting mangled just to prove it?

ROBERT D. GIDEL

Titan

can take it !

Dramatic proof. With its unique bridge and rivet construction, Titan easily supports 54 lbs. without distortion. But—learn *all* about amazing Titan; write for 8-page folder:
Bausch & Lomb Optical Co.,
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BAUSCH & LOMB
SINCE 1853

How Color Can Serve You

—*From page 31*

The only major difference is in the color used to represent steam, Most companies assign steam an individual code color—sometimes yellow, more often orange.

A second point of some divergence relates to the classification of compressed air. The ASA example lists it as a safe material, while some companies consider it hazardous. The addition of a yellow stripe on the "safe" color band for pressures above 50 to 75 psig (and, incidentally, for liquids above 130 or 140F), as practiced by American Cyanamid would appear to be sound.

The color choice within the four (new) ASA groups is left somewhat to the user's discretion. All process piping should be classified according to its fluid content as safe, hazardous, protective, etc. Then, a decision can be made as to the number of code markings required. If only a few materials are handled it is not unusual to vary the colors and stripes to code each material. If the materials are numerous, it is more practical to adopt a limited number of specific codes, relying upon the legends printed on the bands to separate a given material from its general class.

Apparatus and Equipment

Table III lists the standard color coding for apparatus and equipment as suggested in the American Standards Association's Z53.1-1953 *Safety Color Code for Marking Physical Hazards and Identification of Certain Equipment*[2]. *Yellow*, or *yellow and black*, is used for the "strike against" hazards such as low clearance, industrial trucks, or guard rails. *Orange* is standard for hazards likely to cause serious injury—hazardous rotating parts or safety starting buttons are often painted this color. *Blue* is used as a precaution color, as on electrical controls, while *red* naturally denotes fire equipment. *Gray* (or white or black) is often used for traffic marks and waste receptacles. *Purple* has gained acceptance for designating radiation hazards.

All of these colors fit within the basic ASA code, and, if used consistently, they soon are recognized and accepted by the employee. Improved safety records in plants using color codes are numerous. A yearly frequency rate of 46 for certain accidents was reduced to 5.6 during the first year of color coding at a U. S. Army Quartermaster Corps installation. At a second depot, disabling injuries were reduced from 13.3 to 7.0 for each million man-hours worked. The New York City Board of Transportation reported a 42 per cent reduction in the accident rate after adopting a color coding system and carrying on an active safety campaign. While these figures are not likely to be duplicated in an already safety-conscious industry, they illustrate graphically the effectiveness of color code systems.

Color for Work Areas

Selection of plant colors, including those on structural steel and machinery, should be done on an orderly, predetermined basis. Correct selection of colors for specific locations and their integration for related areas can go a long way toward reducing fatigue, minimizing accidents, and providing pleasant working conditions.

—*To page 104*

TABLE I. Comparison of Piping Identification Color Schemes

Material	*ASA Classification*	*General Motors*	*Du Pont*	*Monsanto*	*American Cyanamid*	*Union Oil Co.*	*American Potash & Chemical Corp.**
Steam, high pressure	Dangerous—Yellow or Orange	Aluminum	Alert Orange	Yellow, 2 Black stripes	Orange	Aluminum, Yellow band	Orange, 1 Black stripe
Steam, low pressure	Safe below 212 F—Green	Aluminum	Alert Orange	Yellow, 1 Black stripe	(Safe below 130 F)	Aluminum, Yellow band	Orange, 2 Black stripes
Gas (fuel)	Dangerous—Yellow or Orange	Yellow	Yellow	Yellow band	Yellow	Yellow	Light Orange
Dangerous process fluids (acids, etc.)	Dangerous—Yellow or Orange	Orange	Yellow	Yellow	Yellow	Orange	Yellow
Fresh water	Safe—cold Dangerous—hot Green	Green	Green	Green	Green (Yellow stripes above 130 F)	White (Yellow band when hot)	Green (Yellow stripe above 140 F)
Brackish water	Safe—Green	Green	Green	Green, 1 Blue band	Green	White; Black, or Brown band	Green, 1 Black stripe
Compressed air	Safe to 300 psig—Green or achromatic	Blue	Yellow	Green, 1 Orange band	Green (Yellow stripes above 75 psig)	Blue (White band on low pressure)	Gray, (Yellow stripe above 50 psig)
Vacuum	Safe—Green or achromatic	None	Gray	Green, 1 White band	None	Green	Gray, 1 Orange stripe
Sprinkler (water) and fire equipment	Fire Protection Red	Red	Red	Red	Red	Red	Red
Electric conduit	None	Black	Black	Orange	None	None	None

A stripe is generally less than 1½ in. wide, while a band is wider, e.g., Union Oil Co.'s first color is three pipe diameters wide, while the band is one diameter wide, centered in the first color.
*Proposed

"More here than meets the eye. Miss Frances Bethune, Employers Mutuals' consulting nurse, is pictured here with Mrs. Ann Weaver, a Delta Air Lines, Inc. nurse. They are examining a worker's eye under a magnifying glass.

"A lady of tireless energy, Miss Bethune travels over the southeast advising and consulting with various industries about what she terms 'preventive medicine for industry.' She sets up first aid centers, advises about equipment and helps locate nurses. She has a personal interest in making every plant she visits a safer, better place in which to work. I was interested in discovering how much women like her do for industrial progress."

"The cutter is for wood—not fingers. Veneer cutting is a hazard for fingers. Warren Brown, an Employers Mutuals' safety engineer, saw this problem at the Georgia Lumber and Veneer Company. He recommended a new guard design. Warren is shown at right with Allen Mills who is happy there has been no accident since the guards were installed. I understand it is this kind of safety work that means lower workmen's compensation insurance costs for Employers Mutuals' policyholders."

"I found a little bit of **Wausau** away down south in **Dixie**"

"Putting out a fire before it starts. I learned that one of the services of Employers Mutuals is their fire protection engineers. Bob Giddens is one of them. He's shown here, at left, with Harry E. Roos, Jr., chief architect for Southern Engineering Company. What they're doing is 'creating a low fire insurance rate for a building right from the architect's model.' Bob's file of letters from policyholders who now enjoy his 'pre-shrunk fire insurance rates' is evidence of his good work."

A WAUSAU STORY

by ED BLAIR, Award-Winning Atlanta News Reporter, WAGA-TV

"A reporter is always looking for the human interest angle in a story. Business stories seldom have it. But I found an exception in the Wausau story. Wausau is a fairly small community up in the hunting and fishing country of Wisconsin. They say you can almost hear the fish splash from any downtown building and if you look sharp you can see a deer. It's the kind of place city folks dream about when the going-home traffic gets snarled. I hear that the people there are just about as nice and friendly as you'd ever want to meet. They conduct business in that spirit, too.

"As Bill Daily, manager of the Employers Mutuals Southeastern Branch in Atlanta, put it—'doing business with Wausau people is as pleasant as going to their home for a Sunday fried chicken dinner.' I think you'll get the Wausau idea from reading the three stories under the pictures on this page."

Employers Mutuals, with offices across the country, writes all lines of fire and casualty insurance. We are one of the largest in the field of workmen's compensation. For further information see your nearest representative (consult your telephone directory) or write us in Wausau, Wisconsin.

Employers Mutuals *of* Wausau

"Good people to do business with"

Color —*From page 102*

Furthermore, standardization of specific colors for certain uses minimizes paint inventories and generally helps to improve the appearance of a plant. Using a uniform color in the painting of structural steel is a good example. Terra cotta red or olive green are often used most effectively for this purpose, although any color can be used that does not violate the color coding system nor interfere with the overall color scheme of the plant.

A uniform color specification for motors, gear reducers, pumps, etc., is also a step in the right direction. Usually a neutral color, such as blue-gray or light gray, works best in this capacity.

Reducing Fatigue

Control of brightness, light intensity and glare is one important consideration in selecting colors for work areas. The eye tends to adjust itself for light intensity by dilating to suit the conditions, but repeated adjustment can lead to eyestrain, fatigue or headaches. Thus the eyes of a man working at a dark machine but facing a window or a light-colored wall are required to adjust each time he glances up. Research has shown that the "brightness ratio" in such a case should not exceed 10 to 1, or better yet 5 to 1. This ratio is a measure of the relative amount of light reflected from two surfaces: If the wall reflects 50 per cent of the light striking the area, while the machine reflects 25 per cent, the brightness ratio is 2 to 1.

To correct a poor ratio, a wall can be painted a darker shade or a shield placed in front of an offending window, but it is preferable to paint the machine a lighter color. Since the eye tends to concentrate on the lighter or brighter area, painting the machine will improve safety and operating efficiency. The Public Building Administration was able to report a 5.5 per cent increase in worker efficiency in a single office by reducing high brightness ratios to less than 5 to 1.

Another proven method for reducing eyestrain is the use of complementary colors on walls behind machines or other objects of focus —coral behind blue-green, for example. The eye is actually rested by the change from a color to its complement.

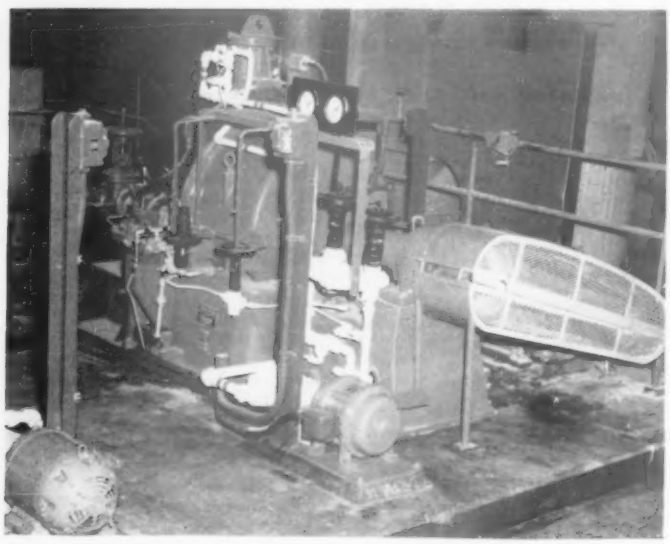
Total illumination is very important, and the use of light, highly reflective colors, whenever possible, is a major requirement of functional coloration in working areas. By using reflective colors in keeping with allowable brightness ratios, the lighting becomes more efficient, and visibility and productivity increase. Studies have shown that the most restful lighting is from large-area, low intensity sources. Good room reflectivity aids considerably in approaching this condition. Table IV lists the preferred range of reflectivity for walls.

Psychological Effects

The association effects of certain colors are well known. For areas in which the temperature is too high, the use of light-green or blue-green walls is found to have a cooling result on the occupant, while in cold areas, warm tones have the same ameliorating effect. Cool colors also give a receding appearance to walls and tend to make a room seem larger, while warm-colored walls have the opposite tendency.

Varying the predominant color from area to area provides a stimulating enviroment. At the same

—*To page 156*



COLOR CODING of lines and guards and standard use of machinery, instrument and motor colors in the chemical grade potash centrifuge area aid housekeeping and improve safety in the production of a high-purity chemical.

References

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It's Fun to Phone

Once upon a time there were two people who were sad and lonely and wishing they could hear a cheery word. And then a wonderful device that could send voices over wires brought them together, like a fairy wand, and they lived happily ever after.

And the idea grew and grew and now there are millions of people every day—and of every age—who find happiness and good times through the telephone's help in bringing lives and hearts together.

Bell Telephone System

DOLLY PHONE

The cuddly rag doll in the little girl's arms is Dolly Phone, designed by Bil Baird of the famous Baird Marionettes.

The 1955 Accident Toll

—*From page 29*

death rates below 55, 18 had rates of 55 to 63, and 16 had rates higher than 63. In general, the lowest rates were recorded in the Middle Atlantic states, with a regional rate of 45, and the New England states, 51. The average rate for the Mountain states was 81. In other regions rates varied only from 54 to 62.

Type of Accident

Motor-vehicle deaths ranked first among accident types in 1955, with a total of 38,300 deaths, an increase of 8 per cent from 1954. Falls ranked second with 19,800 deaths, about the same number as occurred in 1954. These two types of accidents alone accounted for three-fifths of the accidental death total. No other accident type even approached them in importance. Deaths from fire burns, the next most important type, numbered 6,300, only one third the death total for falls.

The population death rates for the important types of accidents showed little change from 1954 to 1955, except for the motor-vehicle rate which rose from 22 to 23 per 100,000 population.

Table II gives the death total, the death rate and the change in rate for the principal types of accidents.

Work Accidents

Deaths in work accidents totaled about 14,200 in 1955, or 200 more than in 1954. Disabling injuries numbered about 1,900,000, compared to 1,850,000 in 1954.

These deaths and injuries cost the nation a total of approximately $3,500,000,000. Of this amount $1,000,000,000 represents the value of services lost to the nation as a result of disability, even though the worker himself was compensated for a part of the loss.

Medical care for injured workers cost $370,000,000 and overhead costs of insurance totaled $410,000,000. The remaining $1,700,000,000 represents the estimated money value of damaged equipment and materials, production slow-down and time lost by other workers.

TRENDS IN ACCIDENTAL DEATHS, 1954 to 1955

TABLE I — By Age

Age Group	Total Deaths	Deaths per 100,000 Persons	Change in rate from 1954
All ages	93,000	56.6	+1%
0 to 4 years	8,350	45.6	−3%
5 to 14 years	6,150	20.2	−1%
15 to 24 years	12,700	59.7	+7%
25 to 44 years	20,900	44.8	+4%
45 to 64 years	18,900	56.6	+2%
65 years and over	26,000	184.0	−1%

TABLE II — By Type

Type of Accident	Total Accidental Deaths	Death Rate per 100,000 Persons	Change In Rate From 1954
Motor-vehicle	38,300	23.3	+ 5%
Falls	19,800	12.1	− 2%
Drownings	6,500	4.0	+ 3%
Burns	6,300	3.8	0%
Railroad	2,850	1.7	+ 6%
Firearms	2,200	1.3	− 7%
Poisons (except gas)	1,250	0.8	0%
Poisonous gas	1,100	0.7	− 13%

The cost of work accidents to industry alone averaged $50 per worker, but this average cost includes lower costs in many organizations where effective safety programs are being used. Where little has been done about accident prevention, the average cost of accidents is usually much higher.

Absence from the job by injured workers was responsible for a total loss of working time of about 45,000,000 man-days. This figure does not include time lost on the day of the injury or time required for further medical treatment after return to work. Additional losses, due to reduced productivity of others in the neighborhood of the accident, delays while damaged equipment was being repaired, and the man-day equivalent of damaged products or equipment brought the total time lost during 1955 to about 235,000,000 man-days—equal to the working time of more than 900,000 men for a full year.

Death Rates

About 24 out of every 100,000 workers in the nation were killed in work accidents during the year. This average for all industry results from death rates for individual industries ranging from a low of 11 per 100,000 workers in the trade industry to a high of 104 deaths per 100,000 workers in mining, quarrying, and oil and gas wells.

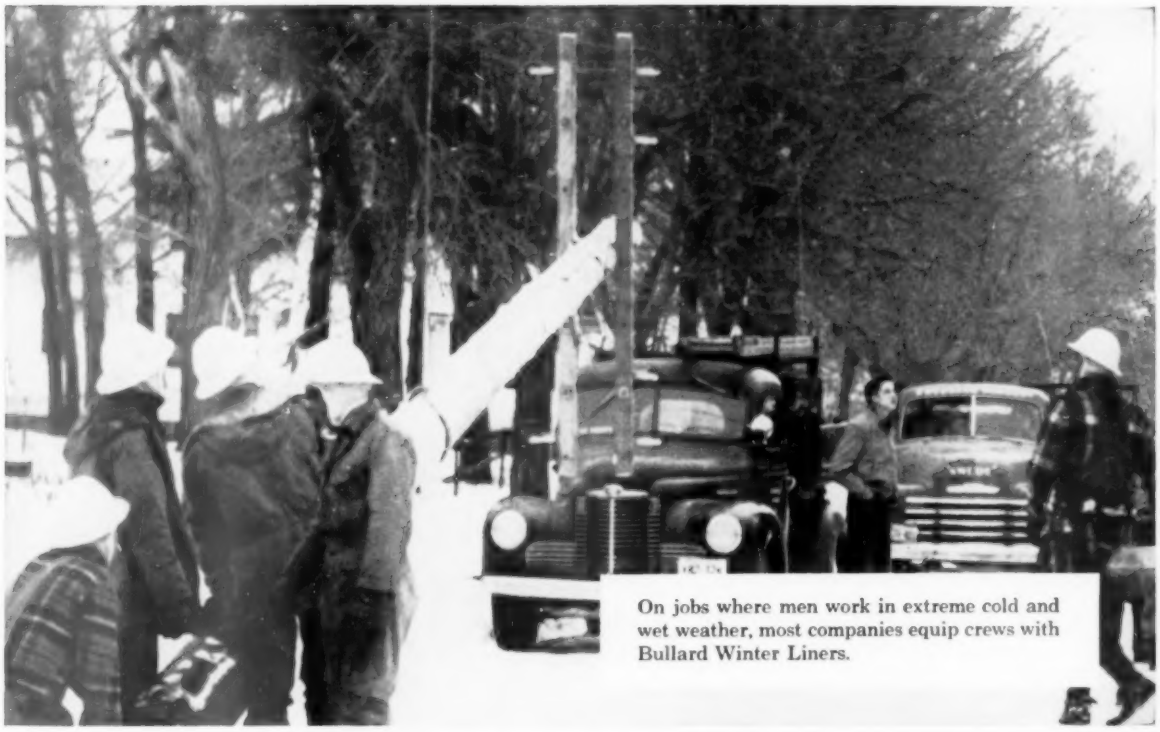
Off-Job Accidents

As usual, many more workers were killed off the job than on the job during 1955. Out of a total of 45,000 worker deaths during the year, about 30,800 or 68 per cent were the result of nonwork accidents—in the homes, on the streets and highways, or in other public places. The following table compares the death and injury totals for on-job and off-job accidents to workers and the classification of the off-job injuries.

Place of Accident	*Deaths*	*Injuries*
At work	14,200	1,900,000
Away from work	30,800	2,400,000
Motor-vehicle	18,200	650,000
Public non-motor-vehicle	6,300	800,000
Home	6,300	950,000

—*To page 108*

SUB-ZERO CONDITIONS — WARM WEATHER COMFORT



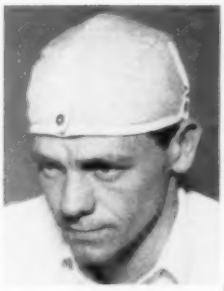
On jobs where men work in extreme cold and wet weather, most companies equip crews with Bullard Winter Liners.

BULLARD WINTER LINERS

5 types for all safety hard hats and caps

CAT. NO. 70-EL-33, MED. OR LARGE

Rugged, wind resistant and water repellent outside fabric with fleece or wool interior. Specify fleece or wool lining.



CAT. NO. 70-EL-38, MED. OR LARGE

CAT. NO. 70-WL-2K

CAT. NO. 70-WL-1K

Wool knitted caps in two styles: as snug, close fitting skull cap, or as elastic knit skaters' type that covers neck and ears.

Fabric and knit combination assures extra warmth and wind protection for ears, neck, head, and forehead.

CAT. NO. 70-WL-3K

Arctic type liner, all wool knit. Protects head and face. Front slips down over mouth.

UNIVERSAL SIZE

Fits all safety hats and caps

Fabric liner snaps over leather or leatherette sweatband, holding hat or cap firmly in place, maintaining full margin of safety protection.

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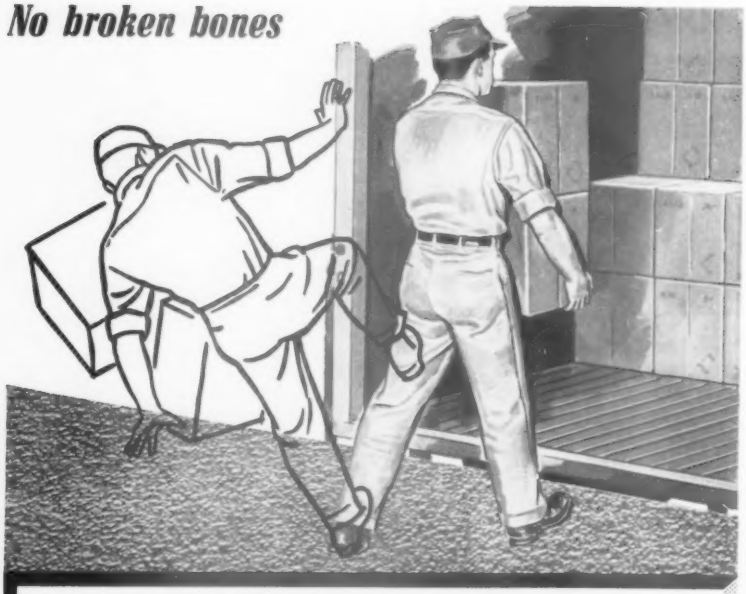

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Accident Toll

—From page 106

The ratio of off-job injuries to total injuries is even higher in organizations with good on-job safety programs. Several industrial establishments with good safety records have reported that off-job accidents are responsible for 85 to 90 per cent of the disabilities due to accidental injuries.

Motor-Vehicle Accidents

Motor-vehicle accidents in 1955 were responsible for 38,300 deaths in the United States. These accidents also caused 1,350,000 nonfatal injuries of which 110,000 left the victim with some permanent impairment.

Motor-vehicle travel in 1955 was greater than in 1954, amounting to about 595,000,000,000 vehicle-miles. The death rate per 100,000,000 vehicle-miles was 6.4—2 per cent above the 1954 rate, but lower than the rate for any previous year. In 1945 the rate was 11.3, so in 10 years it dropped 43 per cent.

Motor-vehicle accident costs were estimated at $4,500,000,000 in 1955, of which $1,700,000,000 was property damage.

In cities and towns with more than 2,500 population, 9,400 persons were killed in motor-vehicle accidents, or 6 per cent more than in 1954. In rural areas and towns of less than 2,500 population the death total was 28,900, an increase of 8 per cent.

Until the end of the war, the mileage death rate was approximately 11.5 per 100,000,000 miles of travel. Had the mileage death rate been the same in 1955, the death total would have been approximately 68,000, or 30,000 more than the actual number.

Home Accidents

Accidents on home premises in the United States were responsible for 28,000 deaths in 1955, or the same number as in 1954. Nonfatal injuries totaled 4,200,000. This means that nearly 3 per cent of the entire population of the country suffered disabling injuries in home accidents; and 110,000 of these were left with some permanent impairment. These ac-

cidents caused an economic loss of about $850,000,000.

There were increases from 1954 to 1955 in fatal falls and deaths from fire burns. Decreases were recorded for deaths from poisons, poisonous gas, and firearms accidents.

The leading cause of home deaths continues to be falls. Of these falls, well over four-fifths were of persons 65 years or more of age. However, accidental injuries from falls in the home are not exclusively a problem of old age. Older persons do not recover from their injuries as readily as younger persons, but various home accident surveys have demonstrated that falls are a leading cause of injury in the home among all age groups.

Public Non-Motor-Vehicle

Approximately 16,000 persons were killed in public non-motor-vehicle accidents during 1955. Of these 3,700 were killed in accidents involving street cars, railroad trains, boats, airplanes, bicycles and other road transport vehicles, but not involving motor vehicles. The largest single cause of public non-transport deaths was drowning, with a total of 4,400 deaths not including those associated with transport accidents or those in which the person was drowned while he was at work. Deaths from falls ranked second with 3,000, deaths from firearms accidents third with 1,050, and fire burns and injuries associated with conflagrations fourth with 500 deaths.

Railroad

During 1955 a total of 2,821 deaths occurred in railroad accidents or 7 per cent more than occurred in 1954. This total includes deaths of passengers, employees, other non-trespassers and trespassers.

Deaths of passengers on trains decreased from 23 in 1954 to 19 in 1955. The passenger death rate in terms of passenger miles traveled was 0.07 per 100,000,000 passenger miles. Trespasser deaths numbered 836, an 8 per cent decrease from the previous year.

Deaths of employees on duty totaled 284, a 25 per cent increase from 1954. The employee death

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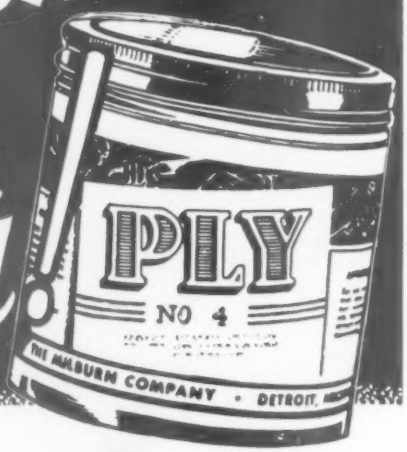

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rate, for Class I roads only, was 0.12, a 33 per cent increase from the 1954 rate. The frequency rate for all injuries — deaths, permanent disabilities and temporary disabilities causing absence of one or more days—was 14.09 injuries per million man-hours worked.

Deaths from grade crossing accidents numbered 1,533. Collisions between trains and motor vehicles accounted for 1,398 of these deaths, a 14 per cent increase from 1954. National motor-vehicle mileage was 6 per cent greater than in 1954, while train mileage rose 3 per cent, indicating a substantial increase in exposure to grade crossing accidents.

Aviation

The 1955 passenger death rate for the domestic passenger-carrying operations of scheduled air lines was 0.76 per 100,000,000 passenger miles. This was substantially higher than the rates for the three preceding years, but lower than the rates for earlier years. In 1930 the passenger death rate was 28.6. Out of a total of 181 persons killed in domestic scheduled airline passenger-carrying operations, 156 were passengers, 21 were crew members, 2 were occupants of a plane with which an airline plane collided and two were persons on the ground who were struck by propellers.

Deaths in civilian nonscheduled domestic air-carrier service and private flying combined totaled 682 in 1955, or 3 per cent fewer than occurred in 1954. Of these, 31 deaths occurred in the operations of nonscheduled air-carriers, and 651 in other commercial operations and in private flying.

"I was knocked down by a 'hit-and-pedal' driver."

Consultation Corner

—*From page 66*

The equipment consists of a compact receiver and receiver loop for each crane or other fixed location, and a portable transmitter with transmitter loop to be positioned wherever temporary protection is required. The transmitter and receivers are tuned to the same carrier frequency. At a predetermined proximity, sufficient energy is transferred from one to the other to actuate the impulsed receiver by the high steady output of the transmitter.

Some companies use rail clamps and employ an observer who rides in the cab of the operating unit. A string of lights or flags strung between the rail stops have been utilized successfully.

Several installations utilize limit switches and out riggers. These primarily control terminal travel, however, temporary outrigger or trip arms are placed on the disabled crane to trip the limit switch which de-energizes the power set by the brakes of the approaching units.

It appears that some type of adaptation of these limits, where possible, in conjunction with rail stops would prove effective.

Shocked on Rail

Question. A trackman received an electric shock here while tightening bolts of track joint bars with an ordinary long-handled wrench.

It had been raining that morning and some workers claimed they had seen sparks travelling along the rail, indicating that perhaps lightning had struck it.

The man stated that the current entered his right arm, went to the right side of his head, and then down his right leg and was gone. He was feeling fine when we talked it over, a couple of hours later.

Have you heard of similar accidents? Perhaps you could give us some data and precautionary measures in order to prevent a recurrence.

Answer. We have never heard of a case like this, however, it is possible that lightning in the vicinity could induce a current in

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Protect your workers with Jomac HR Gloves—and you'll cut your annual bill for safety way down! Jomac HR's provide rugged, dependable hand protection. Made of famous loop-pile Jomac Cloth, they cushion hands against sharp or heavy objects—insulate them against heat. And Jomac HR's really take the bite out of your glove costs—because they last and last. Here's why:

- **they're made of long-wearing brown-and-white mock twist yarn**
- **they're interchangeable; any two make a pair, so each pair provides four long-wearing surfaces**
- **they can be washed or reconditioned many times over**
- **on-the-job tests have proved they outwear other gloves by a margin of 3 to 1!**

Try Jomac HR Gloves for dependable protection and long, economical wear. Jomac makes a complete line of work gloves and wrist-to-shoulder protection. Send for prices and complete details.

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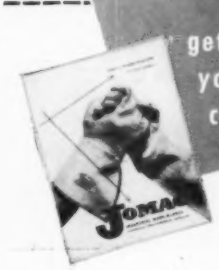

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the track. Then if the track were insulated from the ground, and the man who working on it was well grounded, the induced current might well go to the ground through his right arm and leg.

Some sparking might occur at the rail joints because of the lack of rail bonds, or an existing high resistance bond. It is also possible that lighting could create a corona effect which appears as a luminous glow on the rail.

The only precautionary measures that I can recommend are to check your rail joint plates, which I believe you call track joint bars. Each joint should be bonded with a regular copper rail bond to reduce the resistance between the joints. I would also double check to see that the tracks were grounded at various points to overcome any high resistance or insulation that now might be encountered, because the tracks are located on wooden ties or non-conducting earth.

Following the codes that are established for lightning rods would protect your workers. The bonding of the joints and the grounding of the rails in a better way would reduce the tendency for lightning to induce currents into the rails.

Storage Tank Protection

Question. In one of our plants a chlorine storage tank is being erected.

I would like to know what safety measures you suggest for it, especially whether a dike should be built around it and what distance from an office or underground air raid shelter such a tank should be.

Answer. A dike is recommended around the chlorine storage tank and the distance from an office or underground air raid shelter should be at least 400 ft. Direction of the prevailing wind should be considered in locating the tanks, in order to minimize the possibility of chlorine being blown towards the office building or any other building inhabited by employees.

This department can furnish the names of organizations you can write for information covering location of tanks, relief valves, hand valves, excess full valves and other protective equipment. One publication has a section devoted to safety precautions and emergency measures, including handling of leaks. NSC Data Sheet D-207, contains further material on chlorine.

Fire Preventive Agents

Question. We have been trying to discontinue the use of carbon tetrachloride in our plant. We use large amounts of benzol in our operations and naturally have had lines burst. This results in benzol leaking on the floor. To prevent this material from igniting, we spray carbon tetrachloride on the benzol from a portable hand extinguisher, thereby lowering the benzol vapor concentration to a point where the feed can be cut off and the benzol spillage cleaned up without the fire occurring. Luckily, these spills have occurred in well-ventilated areas

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SAFE TO USE
THOSE IN THE KNOW
. . . PREFER
Install K-LENS-M Lens Cleaning and Anti-Fogging Stations for clean, clear vision . . . for all types of safety eyewear, glass or plastic.
More Efficient—Lower Cost
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where no one has been affected by the fumes.

Are there other agents that would prevent these fires as well as carbon tetrachloride? Do you have a data sheet on the evaporation rate of various liquids, such as benzol and carbon tetrachloride?

Answer. Using carbon tetrachloride with benzol does not reduce the evaporation rate of benzol nor lower the flash point. Both benzol and carbon tetrachloride are toxic in liquid and vapor form. In fact, by the time you have started to apply carbon tetrachloride to the spilled benzol, a large quantity of benzol will have already vaporized and diffused into the air.

It appears that you are getting leaks in the benzol piping system more or less regularly. Your first problem is to maintain the system to prevent bursting pipes and leakage.

We recommend that you remove all sources of ignition from this area. This will necessitate the installation of electrical equipment suitable for Class I, Group D locations.

Personnel in the area should be provided with respirators and gloves for benzol spills. The entire area should have good ventilation. Benzol should be cleaned up as rapidly as possible.

The Council's Data Sheets No. 308, "Benzine (Benzol)," and No. 331, "Carbon Tetrachloride," are available.

Air Hose Check

Question. We use hose coupling chains, but recently, because an air hose was cut in two about 10 feet from the coupling, we had a serious accident.

The whipping hose struck a workman below his eye causing a deep cut. Before we could get back to the compressor's shut-off valve, dirt and other foreign material was blown into other workers' eyes. As a result of this occurrence there were several eye cases.

Can you tell us what method we should follow, or of any safety device that can be installed, to prevent this from happening again?

Answer. Several companies manufacture a safety check device. These are installed in your air pressure line as close to the source of supply as possible. They may be installed before or after the shut-off valve.

The pressure of air escaping from the open end of a broken air hose causes an automatic checking device to operate. Service is restored automatically after repairs are made, without touching the shut-off valve. It is also possible to disconnect the pneumatic tool from the end of the hose, or to extend the hose, without the necessity of the operator making a trip to the distribution point or manifold, to open or close the valve.

These devices are easy to install and require little maintenance.

Science is resourceful. It couldn't pry open the Pullman windows, so it air-conditioned the train.

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Complete Forehead Protection

with Sellstrom's No. 372 DEPENDON Shield!

A special formed fibre cap protects the forehead against dangerous flying particles! That's an *extra* feature you get—in addition to the regular fine features of the No. 372 DEPENDON Shield.

These dependable shields are light weight, yet strong, and positive size-adjustment gives utmost comfort through individual choice of firmness. The open top has the exclusive Sellstrom rotary swivel which permits the greatest ventilation control. The headband has a fibre head strap. Easy-to-replace bound windows, available in clear or green, have three glove fasteners.

No. 372 has met the demand for a safe and comfortable shield!

So you can see the features of the No. 372 for yourself, SEND FOR SAMPLE for 30 day trial. Then you will appreciate the merits of this unusual shield. Write today.

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Around the Compass

—*From page 48*

side can be enjoyed by residents and tourists alike.

Paper mills throughout the state are making posters, stickers and literature on the subject available.

Water Safety Show

As part of their off-the-job safety program, the Industrial Safety Committee of the Twin Cities Area Safety Council, St. Joseph, Mich., recently held their fourth annual water safety show.

Included in the nine-event program, which was witnessed by several thousand spectators, were demonstrations of a life guard rescue, a fire in a boat, man overboard, a sail boat demonstration and modern life saving.

Highway Coffee-Break

Warnings that motorists getting ready to make extended trips during the vacation-holiday period should plan their itinerary so as to permit frequent "coffee-breaks" or other stops, were issued recently by the Greater Detroit Safety Council.

A number of industrial firms are currently distributing special highway safety posters reading, "For Safety's Sake Stop for a Coffee-Break," throughout the state to help remind motorists of the fatigue-factor in highway vacation and holiday travel.

Moving Day in L.A.

September 1 was set as the approximate date for the Greater Los Angeles Chapter, NSC, to move into its new quarters at 3388 W. 8th St.

A committee to obtain funds for furnishing the new offices is being headed by C. J. Weiss, Public Information vice-president.

The new offices will comprise approximately 3,000 sq. ft. on the ground floor of the two-story building. Private offices will be provided for directors of the various divisions, and the entire building will be air conditioned. A paved parking lot adjoins the quarters.

New Omaha Manager

James R. McCauley has been named the new manager of the Omaha Safety Council. Mr. McCauley has been public relations manager of the Hinky-Dink food store chain and was a former staff member of the Omaha *World-Herald*. Married, he resides with his family in the city.

A graduate of the University of Utah, Mr. McCauley also attended the University of Omaha for two years.

State Council Seminar

A Safety Council Seminar was held June 30 in Yakima, Wash. All local safety councils in the state were invited. The one-day conference was designed to better unite the local councils, to make available to them information pertaining to financing, programs, services and assistances available. Suggestion for the successful seminar came from the state meeting at the President's Regional Conference in San Francisco.

The NEW Extra Heavy Duty

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Expertly designed, by the makers of the famous line of "Gold Medal" Ladders, for longer-lasting, extra heavy duty use in maintenance and repair work, or, where an extra-strong, steady ladder is essential. The over-size front rails and rear legs withstand abuse without appreciable weakening. Look at the outstanding features—they give you utmost safety for your money . . .

- Steps flush with front edge of sides.
- ALL steps doubly supported by truss rods and knee braces.
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- Heavy duty horseshoe hinges.
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Medical Examinations

—*From page 21*

workers on a monthly or quarterly basis, while in other cases annually or biennially may be adequate.

In some cases, screening laboratory tests at regular intervals will suffice as the major portion of a periodic examination program with complete examinations being made less frequently.

Examinations of executives may be regarded as a special type of periodic examination of a particular class of employees. While not entirely new, they are becoming more prevalent, and are justified, by their advocates, on the premise that business executives carry heavy and never-ending responsibilities, included in which may be the welfare of large numbers of employees.

While some of these programs are on a required basis, considerable advantage accrues when they are voluntary, aided by a thorough promotional campaign inasmuch as individuals seeking examination are more cooperative and appreciative of the service. Practices vary regarding use of in-plant medical departments. If the in-plant medical facility is staffed and equipped to perform any extra work involved, many feel it is preferable to do these examinations within the department. Otherwise, it is best to send executives to outside facilities qualified to perform the required services.

Special Examinations. Special examinations may be indicated at time of transfer from one job to another. The control of communicable diseases by examination of those who handle food is another example of special purpose examinations. In many jurisdictions these are required by law. Many organizations find it worthwhile to make "return to work" examinations of employees, who have been absent more than a specified number of days, due to illness or injury. This is done to control communicable disease as well as to determine suitability for return to work. Upon return to work following such absence, a new evaluation of physical capacities may be necessary. Rehabilitation procedures may be necessary to reduce disability and improve the range of employability.

Upon retirement, resignation or termination of employment, some organizations have found it desirable to make examinations and a record of the findings at that time. This is particularly true in operations involving definite exposure to health hazardous substances as lead, benzol, silica and asbestos dust.

Report Forms

No single examination report form has been devised to suit all requirements or the content of detail desired by various physicians. There are report forms by the score. Some reports in current use are so detailed they run

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into several pages and include two pages of minute detail devoted to personal history.

There is a considerable divergence of opinion as to the actual value of such elaborate history detail, even if completely honest and accurate answers can be obtained for every question. Other examination forms in use are so brief they are almost valueless as adequate records or as an indication of the detail of the examination. Many physicians prefer that the form include space to make narrative notes of any significant history, medical findings, and the advice given to the individual.

One popular type of form is that in which the items of examination are arranged in a vertical column with four to eight blank columns alongside. The results of the first examination are entered in the first blank column and dated. Subsequent examination data are entered in the adjacent blank columns, thereby promoting and facilitating comparison with earlier findings. The desired detail and arrangement of the form is a matter for decision by the doctor after consultation with management relative to scope of the examination.

Preservation and Use of Records

The examining physician may properly put information derived from industrial health examination to the following uses:

1. All significant findings should be discussed with the worker with professional discretion. Good judgment should be used to prevent the raising of unnecessary fears, while emphasizing the importance of obtaining adequate personal medical care.

2. A transcript or pertinent data may be supplied to another physician or to health agencies, or as required for insurance purposes on request or consent of employee.

3. The employer should be given a classification of fitness to facilitate placement. A form may be devised for this purpose.

4. The employer should be notified of potentially harmful work environment detected through examination.

5. Governmental agencies such as courts, workmen's compensation commissions, or health authorities should be supplied with information on official order or when required by law.

In all other respects the confidential character of health examination records should be rigidly observed and access should be granted only on written consent of the worker, preferably after preliminary discussion with the examining physician. Suitable filing equipment and training of personnel should be provided for the safekeeping and confidential maintenance of all medical records in the exclusive custody and control of medical personnel.

Fitness Classification Methods

It is not the function of the physician to inform the applicant whether he is to be employed. This is the prerogative and duty of management, as there are other factors in addition to physical qualifications that bear upon suitability for employment.

The referral of completed examination reports to lay persons for use in placement is particu-

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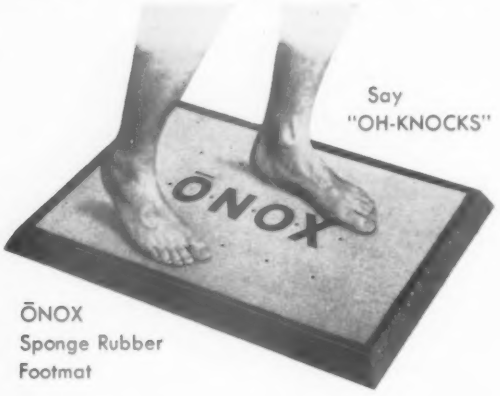

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larly undesirable for several reasons. This practice violates the true physician-patient relationship and is an invasion of the confidential nature of such reports. Furthermore, untrained lay personnel are entirely unqualified to interpret medical facts into terms of work significance, this is the responsibility of the physician.

Placement information should be conveyed by a separate form, based on an agreed plan. This plan or rating method will enable the examining physician to convert medical findings into meaningful industrial terminology. The language of industry used in describing the physical activities and work demands of jobs has supplanted the once familiar but vague and indefinite medical admonitions, for example: "light work."

Many systems of rating are now in use. One method depends solely upon classification into three categories, for example:

1. Fit for any work.
2. Fit for a specific job.
3. Rejection.

Another method uses the following classifications:

1. Physically fit for any work.
2. Defect that limits fitness for work and leaves applicant eligible for certain jobs (the defect may or may not be correctible but may require medical supervision).
3. Defect that requires medical attention, is presently handicapping, and disqualifies for any type of employment.

Some methods are well developed and involve a complete appraisal of physical capacities on a report identical in format to the form used in analyzing jobs for the physical demands required of a worker to perform the job. This method has many virtues, as it promotes the effective matching of workers to jobs.

From the public and industrial health standpoints, the only bars to immediate employment in nonhazardous occupations should be the following findings:

1. Communicable disease. It is obvious that communicable diseases need to be brought under prompt control not only for the benefit of the individual but for the public welfare as well. This may involve the assistance of public health officials.

2. Incapacitating injury or diseases. One of the great values of an examination program is the detection of disease in its early stages, when it is most amenable to treatment. Applicants with incipient but still nondisabling disorders can often be employed while they secure treatment from their personal physicians. Many applicants with incapacitating injury or disease can be referred to rehabilitation agencies for effective assistance in improving their employability and job opportunities.

3. Mental illness in which impaired judgment or actions prevent cooperative effort. It is not generally appreciated by laymen that there is a significant percentage of persons having mental illness or emotional disturbance. These aberrations can be of many degrees and frequently can be important enough to act as a bar to employment. The trained physician can frequently detect them at the time of examination.

Single copy reprints of this article, in pamphlet form, are available without charge, from the Council on Industrial Health, American Medical Association, 535 North Dearborn Street, Chicago 10.

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Dynamite Makers

—From page 33

parts are made of non-sparking metals. So is the tank in which the glycerin and acids are violently agitated by whirling paddles. All electric lights are behind glass windows. When a bulb burns out it is not changed until the plant is idle. Daily, before operations are started up, there are elaborate pressure tests of all equipment to locate possible leaks. Twice a year every piece of machinery is disassembled, every part minutely examined. Nowhere in the manufacture of dynamite is there greater danger than in the "NG" house —four of them on this continent blew up in 1948.

Once the mixing of the glycerin starts, an operator hovers over the dials and switches, watching a thermometer showing the mixture's temperature, constantly trying to hold it within one degree of 40 degrees F. If the reaction should get out of hand, the temperature starting to rise too fast, there is a wooden switch the size of a large shovel handle for him to pull. This will dump the whole batch into a huge "drowning tank" half full of cold water. This particular "NG" house has been operating now for 20 years, making six 3,600-pound batches of nitroglycerin a day. No operator has ever had to pull the emergency switch. But before each batch is started that switch is set, cocked, ready to pull.

The nitroglycerin, which powdermen usually call "oil," flows to a storage house through a rubber hose encased in a waist-high, covered wooden trough winding for hundreds of yards through the trees. The oil is colorless, looks like cloudy water, has no readily detected odor, and is about as dangerous a material as mortals have to handle.

To move it from the storage house to the dynamite line, a hose would be too risky, for an explosion at any spot would race along the whole "NG" line. So, to break the connection, the oil is moved the next hundred yards in rubber-tired buggies with built-in copper tanks. Workmen push these three-wheeled wooden buggies, each containing 660 pounds of nitroglycerin, along wide boardwalks, slowly, deliberately pushing through rain, cold, heat, snow —anything except thunderstorms, when the whole line is closed down.

Nitroglycerin was discovered in 1846 by Ascanio Sobrero, a chemistry professor at the University of Turin. He considered its industrial manufacture too dangerous to be undertaken and for years nitroglycerin was largely a scientific curiosity with only one practical use: it was a heart stimulant. As an explosive, it was hard to handle, ship safely, or detonate precisely. Then came Alfred Nobel, who in 1866 mixed nitroglycerin with kieselguhr, a porous earth, to form a pastelike substance which could be packed into

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cartridges and was easy to detonate—the first dynamite.

Within seven years dynamite works were erected in the United States, Finland, Scotland, Bohemia, France, Germany, Spain, Switzerland, Italy, Portugal and Hungary. Nobel's competitors, trying to circumvent his patents, soon found better materials to mix with the "oil." Today these materials, called "dope," include ammonium nitrate, pulverized coal dust, woodpulp, ground walnut shells, almond hulls, olive and apricot pits.

The oil and the dope meet at the "mix house," another small white wooden building closed in by thick earthen barricades. The dope arrives in non-sparking aluminum cans which cost $25 each. Every batch is screened before leaving the dope house and a magnet is run through it to make sure there are no stray bits of metal. Though watched and tightly covered en route, it is screened again at the mix house.

It was at the mix house that the Reynolds Works had its last fatal explosion, in 1944. Three workmen were killed, just as when the mix house blew up back in 1930. No one knows what caused these explosions, but everyone in the mix house guards against letting even one drop of nitroglycerin, unabsorbed by the dope, receive a sudden blow.

Soft metals are used in the huge mixer which slowly stirs a thousand pounds of dynamite at a time until it looks like buff-colored damp sand. Before starting the machinery a mechanic uses a special tool to check each clearance. He doesn't want anything scraping.

After the stirring is completed a workman with a wooden paddle eases the dynamite into wooden buggies which hold 300 pounds each. He then trundles these rubber-tired buggies, over floors swept clean scores upon scores of times a day, onto a tram car waiting on the plant's narrow-gauge railroad. The track, just before entering the mix house, changes from steel to wooden rails. And the little electric locomotive never comes inside. Instead, it uses a rope to pull the loaded car out, then stops, hooks up, and heads with the loose dynamite toward still another little white house behind more earthen mounds.

Here I watched the strangest machine I've ever seen in an industrial plant: a cartridge packing machine made almost entirely of wood. The moving wooden parts, the creaking noises, the absence of any gleaming metal or sharp metallic sounds, suggest that you are back in the eighteenth century, observing some primitive manufacturing in a cottage. But every minute the cartridge machine is loading, tamping, crimping and ejecting 100 sticks of dynamite. Each night this machine is taken apart, checked, reassembled. Each morning a mechanic inspects it. Then the operator examines it, and be-

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Freon-powered unit may be manually or remotely operated. Rigid steel guard protects assembly.

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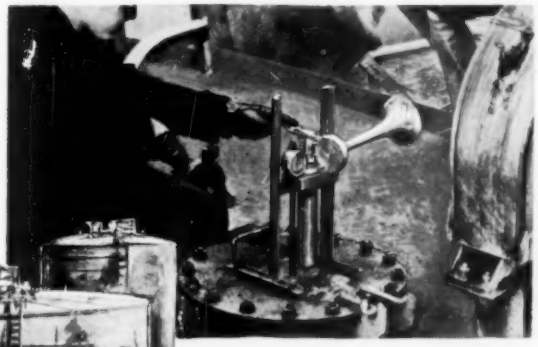
Automatic signal device for liquid-handling operations



Falcon's Tank Overflow unit automatically signals operator when liquid approaches capacity level. Loud blast gives ample warning.

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fore loading it with loose dynamite makes a test run on empty paper cartridges.

Theoretically, it is impossible for any foreign objects to be present in the loose dynamite loaded into the cartridge machine. But a Reynolds cartridge house exploded in 1921, and in 1940 Atlas lost a cartridge house at its Missouri plant. So a cartridge machine now contains one coupling which is deliberately made weak. If a foreign object gets in, or anything else causes the slightest resistance, this weak coupling will break — and automatically stop the machine.

The dynamite sticks are boxed in still another little white building behind more earthen mounds. Here a bounding brook runs by and handsome spruce trees grow all around. But inside the pack house your eye is caught by the ominous sign: "EXPLOSIVE LIMIT 12,000 POUNDS, MAN LIMIT 12." The floors are of beautiful hardwood, clean as a flour mill, laid without exposed nails. No steam line enters this or any other critical building—they are all heated by warm air blown in through ducts.

Even the temperature of the wax in which the dynamite sticks are dipped is exactly controlled. The extra precision in every manufacturing process to make the process safe results in dynamite's having an amazingly uniform quality.

From the pack house a locomotive pulls the boxed dynamite to the magazines nearly a mile back over the hills, two cars at a time, 10,000 pounds of explosives. At every turn in the track there are large, gleaming mirrors, showing the engineer what's ahead. The track has special safety zones which no train can pass until the engineer stops, alights, turns a switch. Each switch is set so that runaway dynamite cars would automatically be shunted onto a spur track leading into an earth-barricaded dead end.

The magazines are windowless low brick sheds set in a row, 500 feet apart — enough distance to prevent an explosion in one from setting off the others. Each holds 250,000 pounds of explosives, is barricaded on three sides, with the loading side facing a high tree-covered hill. They are built so that the doors admit enough light for loading—no electric wires run into a magazine. The Reynolds Works cover some 6,000 acres. Hunting has been illegal here for decades, but underneath the tin roof of each magazine is a thick layer of sand to stop stray bullets in case a hunter should trespass.

Such attention to details has enabled the Reynolds Works, along with plants of other powder companies, to run up fabulous safety records. Every accident is investigated and a detailed report prepared, with charts and diagrams. It it's an explosion, there's even a map showing where every missile landed. These reports try to pin-point the causes and show how they can be prevented.

Accident reports are interchanged not only among a company's different dynamite plants but also among the various com-

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You save production time when you keep irritants *away from* workers' hands with Du Pont PRO-TEK. It's the heavy-duty protective cream that acts like invisible work gloves. PRO-TEK goes on hands and arms before work and shields the skin from grease, grime, paint and insoluble cutting oils. Afterward, PRO-TEK simply washes off—taking all the irritating grime along with it! Saves job time, maintains efficiency, boosts morale. Order PRO-TEK from your supplier, or write E. I. du Pont de Nemours & Co. (Inc.), Wilmington 98, Delaware.

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panies—the explosive firms, fiercely competitive in every other field work solidly together on safety. Even near-accidents are investigated and reports prepared on them for both inter-plant and inter-company exchange. In the 1920's, Atlas dynamite manufacturing had 21 fatalities. In the 1930's, this was cut to eight. In the 1940's to four. None has occurred in the 1950's. At the Reynolds plant there hasn't been a disabling injury on the dynamite line in nine years.

The biggest dynamite explosion in history occurred on March 7, 1913, when the British tramp steamer *Alum Chine* blew up in the Patapsco River, six miles southeast of Baltimore. The ship was loading 600,000 pounds of dynamite—ten rail cars which the tug *Atlantic* brought alongside the vessel on car floats. All but a few thousand pounds had been lowered into the ship's forward hold when fire broke out. Stevedores and crew jumped off the ship onto a float, scrambled aboard the *Atlantic*. The tug was churning away from the scene when two more men ran from the *Alum Chine* onto the float and yelled for help. The *Atlantic* returned, picked them up and was moving away again when the dynamite blew, sinking the *Alum Chine*, sweeping the decks of the *Atlantic* and a nearby collier which was trying to get up anchor, altogether killing 31 men and injuring 38. A roof of a chemical plant 3,200 feet away was caved in.

In a combined dynamite and black powder explosion at the Pleasant Prairie Works in Wisconsin in 1911, 2,311,650 pounds of explosive went off—over 90 per cent of it black powder. Railroad car wheels were thrown a mile. A man ten miles from the explosion suffered a broken leg from a falling door which the blast tore off a barn. Glass was broken in Chicago, 50 miles away, and in church windows in St. Joseph, Mich., 86 miles from the explosion.

The *Alum Chine* dynamite was destined for the Panama Canal, whose construction required more dynamite than any other single project—over 60 million pounds. New York City's aqueduct system has over the years used some 50 million pounds. Apparently the largest single commercial, all-dynamite blast, ever fired was on Catalina Island in the early 1940's —a 300,000-pound shot which produced around a million tons of stone for a breakwater.

One of the most ingenious blasts was fired in 1952 in the construction of the Cabinet Gorge Dam on Idaho's fast-flowing Clark Fork River. The engineers had to build a cofferdam first, but the river was too deep and turbulent to use sheet piling or a fill dumped by trucks. So 65,000 pounds of dynamite were loaded into the gorge walls, fired in a single blast. Three seconds later over 190,000 tons of rock were settled precisely across the river, forming a cofferdam which diverted the stream so dam construction could go ahead.

Most dynamite is consumed in blasts of a few hundred to a few thousand pounds. The "thump"

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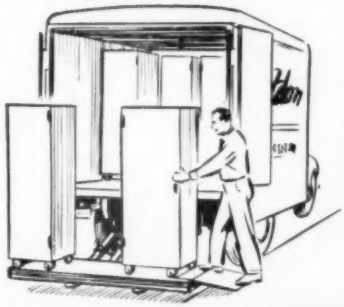

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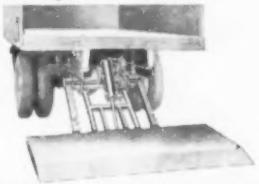

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If high freight rates and costly delivery services are cutting a swath out of your profit picture, here are five ways you can offset them.

1. Speed up deliveries.
2. Develop faster, easier ways of loading and unloading trucks.
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of these explosions actually is as normal a part of our industrial life as the whirl of factory wheels. They add up to over 40 carloads of dynamite fired every day in the United States alone. All this is made by men in white coveralls whose records show that for each hour on the job they have only a fourth as many accidents as bakers and only a seventh as many as workers engaged in manufacturing dairy products.

How and Where People Get Drowned

The first nation-wide study of drownings has just been completed by a doctoral candidate at New York University's Center for Safety Education.

According to B. W. Gabrielsen, associate professor of education at the University of Georgia and author of the thesis on drowning, the most likely places for death on the water are lakes, rivers, and ponds. But, adds the professor—after a study of 1,309 drownings that occurred in 1955—such accidents happen in some very unusual places. These include bathtubs, wells, cattle watering troughs, sewers, rain barrels, and slop buckets.

The study, Professor Gabrielsen says, underscores the importance of swimming at places where adequate life guard supervision is maintained. He noted that only 2.2 per cent of the drownings took place at beaches or pools where life guards were in attendance.

Professor Gabrielsen also uncovered "the alarming fact" that 16.8 per cent (or 220) of the drownings occurred among children under five who were left unattended by parents for a few moments. The Professor found, too, that a large number of water death victims were of pre-high school age. To date, he noted, educators have concentrated on giving swimming instruction to persons of high school age.

Other findings of the study were:

1. The months with the highest incidence of deaths are June, July, and August.
2. The day and the hour that appear most frequently on the accident records are Sunday and 4 p.m.
3. Slightly more than nine per cent of the victims had been under the influence of alcohol.
4. There was a ratio of six men for every woman victim.
5. Almost a quarter of the fatalities occurred after boats carrying non-swimming passengers had been upset.
6. Only 26.3 per cent of the drownings happened to people who were engaged in recreational swimming.

The victims in the cases studied by Professor Gabrielsen were engaged in some 27 different activities at the time of their mishaps. These included fishing, boating, ice skating, horseback riding, hunting golf balls, water skiing, and canoeing.

The study will be available this fall after its publication by the Center for Safety Education.

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IT'S SAFE — eliminates the ever present source of danger at all loading racks — faulty grounds which lead to FIRE.

IT'S SIMPLE — when proper ground is established INDICATOR gives "go ahead" by means of light or audible signal.

IT'S POSITIVE — here is the ONE way to be SURE that some wiring defect, paint, rust or carelessness is not causing a faulty ground.

GILBERT & BARKER MFG. CO., West Springfield, Mass. • Toronto, Canada

Wire From Washington

—*From page 42*

CAA announced that eight cities enplaned more than one million passengers during 1955, as against only five such cities in 1954. CAA's Director of Safety told Congress there had been 127 mid-air collisions from 1948 through 1955, and that there were fatalities in 60 of these accidents. A technical aide to the President's Special Assistant on Aviation Planning said that air safety control was "on the brink" of "chaos" and decried lack of progress in dealing with the matter.

Marine Safety. In this field, the focus of attention was the accident involving two ocean liners off the Eastern Coast of the United States. The House Merchant Marine Subcommittee started a study of this accident, to the extent that it had jurisdiction. A lengthy study of marine safety was promised by the committee's chairman, covering among other topics the following: whether any organization enforces the rules of the international convention regarding safety at sea, and the need for changes in safety standards and effectiveness of radar and in ship design and compartmentation.

Public Law 985 requires all vessels transporting more than six passengers for hire, subject to certain exceptions, to be equipped with an efficient radiotelephone installation in operating condition for purposes of safety, in order to permit ship-to-shore and ship-to-ship communication in time of emergency. This law will affect some 7,000 vessels now without such installations.

H.R. 4090 was passed in amended form and became Public Law 947. In its final form it authorized a study by the Federal Communications Commission, the Coast Guard and the Federal Maritime Administration as to the need for installing automatic radio call selectors (on cargo ships with less than two operators) and other safety devices; a report is to be made by early 1957.

Home Safety. The President signed H.R. 11969 into law, Public Law 930, requiring inside safety latches on refrigerator doors. In its final form, this bill was revised so that its provisions go into effect two years after publication of commercial standards by the Secretary of Commerce.

Miscellaneous. S. 3032 became Public Law 790, authorizing the Middle Atlantic Interstate Forest Fire Compact (see WIRE, March 1956). S. 3076 as amended became Public Law 652, authorizing a continuing study by the United States Public Health Service of illness and disability and the collection of accident statistics. (See WIRE, June 1956).

The daughter of a TV announcer was called on to say grace at dinner one night. She bowed her head and announced in loud, clear, pear-shaped tones:

"This food comes to you through the courtesy of Almighty God."

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on the job and in wash rooms will "inhibit" the menace of

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. . . lost man hours and lost profits!

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VI-LAN CLEAN does what ordinary soaps can not do. It removes greases, oils, paint, acids, graphites, printing inks, asphalt, rubber, gasket cements and other industrial soils and sediments, and provides the prophylaxis inhibiting the germs which too often put employees out of commission.

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Small Business

—*From page 44*

times the *plus* values of safety are forgotten—the less tangible benefits of good employee and public relations. For example, safe, comfortable work places build employee loyalty and productivity. Similarly, training for safety, safety rules and maintenance of employee interest in preventing accidents should lead to less labor turnover and improved employee morale.

Here are some specific ways in which safety boosts public relations:

1. Safety awards to drivers, employees or a company impress the public.

2. Publicity on safety activities, safety meetings, safer processes or procedures reassures the public and employees.

3. Publicity on progress on accident prevention such as in an annual report, trade journals or local papers helps establish the firm's spirit and good will.

4. The firm's distribution of safety literature, sponsorship of civic safety projects and active participation in community safety is a feather in its cap and creates favorable impressions.

Briefly, favorable public and employee relations is important to the growing small firm. Preventing accidents is a potent part of good public and employee relations.

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Test Escape Devices On Refrigerators

EXTENSIVE TESTS this summer with children of National Bureau of Standards staff may help do away with the hazards of entrapment in household refrigerators and freezers.

Conducted jointly by the National Electrical Manufacturers Association and the National Bureau of Standards, Department of Commerce, the tests are designed to study children's reactions to mechanical devices in an effort to find out how much they understand and can use the safety equipment provided for their protection.

At a recent Congressional hearing, NEMA and NBS reported their progress in the development of refrigerator safety criteria and devices to the Sub-committee of the Special Committee on Health and Science. The Sub committee urgently requested immediate further action in evaluating and developing safety devices. The Congressional activity was in connection with bills making it mandatory to include in the design of household refrigerators some type of inside release mechanism which would permit a trapped person to open the door from the inside.

The investigation of children's reactions to safety mechanisms is to be carried out at the National Bureau of Standards, in cooperation with the Children's Bureau of the Department of Health, Education, and Welfare.

Applying for his first accounting job the recent high school graduate was momentarily puzzled by a question on the application blank which read, "What machines can you operate?"

Pausing briefly, he wrote, "Slot and pin ball."

Built-in Safety

—*From page 100*

3. The color scheme of the building and equipment surfaces in the area of the work station. They should provide:

—Good lighting reflectivity without brightness or glare.

—Contrast to make objects easily distinguishable.

—Pleasantness of surroundings.

Fire and Explosion Prevention. While most states have codes which require precautions against fire and explosion hazards, the letter rather than the spirit of the law prevails. The plant layout engineer should be familiar with all the materials and processes used in the plant operations.

Exposure or hazard potential is always a relative thing in industrial plants depending on the precautionary measures taken. Some of the most destructive materials which we possess are being handled daily in comparative safety because proper measures have been taken to prevent accidents.

Fire and explosion are potential hazards in nearly every industrial plant. When the plant buildings are first built, the architect or engineer will have provided reasonable safety features, applying to the known occupancy at the time. But plants are seldom static in utilization. As occupancy changes, the plant layout engineer should see that the necessary changes are made in safety provisions to insure fire and explosion protection. Some of the things the plant layout engineer should constantly keep in mind are:

1. Should sprinklers be provided to protect the building or contents or both?

2. Should sprinklers be avoided due to possible greater damage from water rather than fire?

3. Is there sufficient ventilation to prevent the accumulation of an explosive atmosphere?

4. Are hazardous areas properly partitioned off to prevent spread of the holocaust in event of fire or explosion?

5. Is there a sufficient number of fire extinguishers of proper type strategically located throughout the plant?

6. Is the potential danger great enough to warrant a private plant fire department?

First-aid Facilities. In modern plants of fair size, the first-aid facilities today approach the standard of small hospitals. Indeed, in my experience, the facilities and service in one plant were so good that the local medicos complained that they were being deprived of patients. It is not always necessary to carry the installation to such an extent, but facilities for first aid are necessary in every industrial plant.

The scope of the installation will vary with every plant and the potential dangers of the business. Most modern plants of small size have at least one good size dressing station, ample lavatory facilities, and a cot room. Many today have a full-time nurse on duty and contractual arrangements with a local doctor for service. If a full-time nurse is not engaged, several employees who have extensive first-aid training are always available.

From this modest start, plant first-aid departments increase in size, scope and facilities up to 20 room layouts. Usually such installations accommodate em-

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ployee-examining rooms, waiting rooms, doctors' and nurses' quarters, and offices, medicine rooms, x-ray rooms, etc. The facility should be designed on the basis of adequate requirement to meet the needs of the industry and the plant population.

Flow of Material and Housekeeping. The old adage "a place for everything and everything in its place" is good advice for every industrial plant management. It is the plant layout engineer's responsibility to provide the place—and the supervisors' job to keep things there. If this team does a good job, accidents and costs will be reduced. In plants where the housekeeping is good and material flows smoothly from operation to operation, the safety record is usually good. There is no magic formula for the solution of this problem.

There are some points for the plant layout engineer to think about in preparing the layout, however. He should:

1. Provide space at every work station for all things that occupy space, whether they be plant equipment or material in process.

2. Know how every piece of material can or will be handled throughout the plant from receiving to shipping.

3. Keep in mind that waste materials must be removed from the plant constantly. Many engineers neglect to provide efficient waste removal facilities which accounts for the vast accumulation of junk in many plants. Remember that it costs just as much per labor hour to remove waste material as to move productive, saleable material.

Handling and Storage: Material handling accounts for more industrial accidents than any other plant operation. If an improvement in handling had no other incentive, the reduction of accidents which in turn reduces costs would in itself provide the motive.

Basically, there are two sources of material-handling accidents. They are:

1. Injuries due to the lack of proper or adequate mechanical aids to perform the operation.

2. Injuries due to faulty mechanical handling equipment.

We could debate at length just how far the plant layout engineer's responsibility extends in these matters. You may be inclined to say that these responsibilities fall upon the operating or maintenance personnel. Perhaps you would be correct. But to the accident victim such details offer little comfort. We should not be squeamish about party lines and spheres of responsibility. If it is in the interest of safety, or of better plant conditions, it is everyone's job. There should be a definitely fixed responsibility in every plant for each of these things, but safety or improvement of any kind should not be ignored just because it is "George's job."

Material storage is also a frequent source of accidents. When you consider how often material is picked up and set down in its path through the plant, there must be a right way to do it. Unstable piles of material, blocked aisles, material placed in such a manner as to require reaching, twisting, turning or shoving, all lead to accidents.

Today there are hundreds of devices on the market that enable operators to handle and store material without physical strain. It is the task of the planning engineer to become familiar with these "handling tools" and to engineer them into the layout design.

Visual aids are important in planning the plant. When people can see things, they understand them much better. Planning engineers, technically trained in the language of engineering drawing, may have an excellent mental picture of the plant they are planning. But the many other persons who have a stake in the project may not share this understanding. The three-dimensional layout reduces all these mental pictures to one of common understanding. Everyone from janitor to president will have a better understanding of the proposed plant if it is planned that way.

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Diary

—*From page 14*

departmental figures. The power press room data was markedly better than the general experience of the plant would lead you to expect. The boiler room data was also good, but exposure was too small for drawing reliable conclusions.

We talked training after that, and the picture was pretty dark. He was doing a little with new employees and with foremen, but I drew a blank when I tried to get from him reasons for not doing a more ambitious job in this field.

I asked about routine inspection reports. "You'll have to get those from the front office," he said. "That is, if they keep 'em."

I asked for his carbon copies. "Sorry," he said, "they're not available."

I reminded him of my authority from Eastern to inspect all records. "Sorry," he said stubbornly. "My instructions are that inspection and investigation data are confidential. Why not talk to the super?"

I devoted my second day to roaming the plant without Ryan. I talked to machine hands, gang pushers, foremen, and the superintendent. Except for the two departments I mentioned before, none of the hands even knew Ryan's name. Neither the foremen nor the superintendent had anything definite to say about Ryan. I got the impression that they considered him something of a pest.

The third day, I tried to get some of the deeper background. I learned that Ryan had come to Liedell in 1953. His predecessor had combined two or three personnel functions, of which safety was one. According to the power press foreman, he was a windbag, fond of making speeches.

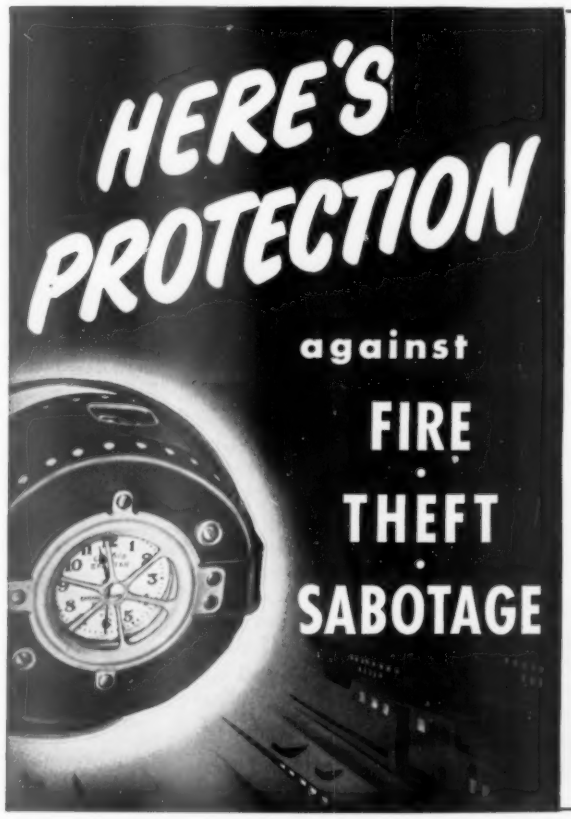
Ryan himself, I learned, had gotten into safety work in the Army in Korea, on the traffic side. He had finished up an engineering education at a state university with a creditable though not distinguished record. He's married, has two kids, and his wife is again pregnant.

I attended one foreman training class, and he handled it very well, but his group seemed unresponsive.

The front office, on most unconvincing grounds, found ways to deny my request for copies of the inspection reports.

Somewhere, somehow, there was a wall between me and that plant—a wall of real defensiveness in the front office and the departments, and a wall of weary resignation in the safety office itself. It seemed to be a situation calling for something more than routine investigative techniques.

So I asked Ryan to dinner with me at a roadhouse out of town. Over cocktails, I started reminiscing about my old boss at Monarch, and the fights he had with management. We talked about the weary years of battling bureaucracy at the ordnance plant during the war and just after. I talked



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about Jackson-Barnes and old man Jackson with his bitter skepticism of the safety program and his later conversion to the program. I talked about my predecessor at Exsteel, drifting toward retirement a beaten man because of management indifference. The talk ran that way through the steaks, the dessert, and the brandy.

Ryan, with three drinks in him, began to warm to me a little, but with reservations. He asked, finally, "Why tell me all this?"

I replied, "Because I want you to accept me as a guy who has been through the mill, and who wants to help you. I'm not a part of your management apparatus, but I'm in a position to influence it. I've got to know whether the fault for a bad situation lies in their stubbornness and blindness or in your weakness and cowardice. I've been hoping that what I had to say would give you an opening."

He flushed at those words and finished his drink. But all he said was, "This place is too rich for my blood. Will you come home with me and drink some beer?"

I agreed, and we sat in the kitchen talking little while Jane Ryan put the kids to bed. When she joined us, Dennis asked her, "How bad do you want to stay in Maxton?"

She thought a moment, then said, "I was raised here. My folks are here. But I'm married to you, Dennis Ryan, and that's what matters."

"Okay," Dennis said, and then he turned to me. "I know you've been around, and know the field. I'm sick of this situation, and yet, for some crazy reason, I still think I belong in safety work. If I level with you, will you back me up if I have to go job-hunting next week?"

I replied, "I will if you can convince me that this mess at Liedell isn't your fault."

He looked across at his wife again. "What do you think, hon?"

She took hold of his hand and said, "You have to do what is right, Dennis."

I didn't get out of the Ryan home until after midnight. From a desk on the sunporch, Dennis produced a complete set of files on inspections, investigations, recommendations, and dispositions of the recommendations. There were the data and proposals for a first-rate program. And there, too, were the evidences of responsibility for frustrating the program.

* * *

Next day, I bearded Haste, the general superintendent, in his own den. I got equivocation, evasion and denial of responsibility. But I got no refutation of the case Ryan had presented. In the end, Haste accused me of being a meddler and Ryan of being a traitor to the company. I produced again the credentials Haste had merely glanced at during our first visit, pointing to the paragraph that read, "The safety consultant is to be given access to all information about the safety program by personnel at all levels." Then I said evenly, "In view of this directive, I don't believe that any charge of disloyalty can be levelled against Mr. Ryan."

Haste changed his position then, denying that he wanted to suppress any data, but charging that I was being victimized by misleading interpretations by Ryan. I renewed my request for access to his file of inspections and investigations, and he explained that he didn't keep such a file. "We take action and then throw them away," he said.

I let that go, for the case was clear enough without further digging.

I called the Eastern vice-president to whom I report, and put the situation before him. As usual, he accepted my recommendations, and also as usual suggested that I get on home and let a clean-up crew come in and put the needed reforms into action. I was getting used to being a mere fact-finder by this time.

But one thing did worry me. "What about Ryan?" I asked.

The v.p. said, "That'll be up to the man who goes into the situation. If possible, we'll keep him there, but it may be that his usefulness in that company is ended."

"And if it is, what then?" I asked.

"Don't worry. I've got places to put three good safety men."

Ankeny Heads Bureau of Mines

MARLING J. ANKENY, right, taking oath as director of the Bureau of Mines, U. S. Department of the Interior. Left is Floyd E. Dotson, chief clerk of the Department, administering the oath. Center is Secretary of the Interior Fred A. Seaton.

MARLING J. ANKENY, of Bethesda, Md., became the tenth director of the Bureau of Mines on July 20 when he took his oath in the office of Secretary of the Interior Fred A. Seaton. He succeeds J. J. Forbes, who retired last November.

Ankeny, whose nomination was confirmed by the Senate July 19, returns to the agency he served for 24 years until his resignation in 1952 to become safety director for the Bituminous Coal Association.

The new director, who has a varied background in the fields of coal and metal mining, was graduated from the College of Engineering, Carnegie Institute of Technology, Pittsburgh, Pa., in 1923. His employment in mines began in 1920 and continued until 1928 when he joined the Bureau of Mines at Pittsburgh as a safety worker. His Federal employment followed duty as safety director for the National Mining Company of the United States Steel Corporation at Morgan, Pa.

Ankeny's career with the Bureau of Mines found him participating in many projects concerning the metal mining industry and its operational problems, his studies taking him from the iron mines of Michigan to copper, lead, and zinc mines of the West, Missouri, and New York and to quarries and other nonmetallic operations in the New England States and in Maryland and West Virginia.

Throughout his years in the Bureau, Ankeny drew frequent assignments in recovery and investigative work following mine explosions. In many such trips he led rescue crews underground to help bring workers to the surface.

From 1941 until 1952, with the exception of two years as a Navy officer during World War II, Ankeny was closely associated with Federal inspection of coal mines and in his last four years directed all such safety work for the Bureau with headquarters in Washington, D.C. Upon leaving the Bureau in 1952 he received the Department's Honor Award for Meritorious Service.

Ankeny is a member of the American Institute of Mining, Metallurgical, and Petroleum Engineers; the Coal Mining Institute of America; the American Society of Safety Engineers; the National Mine Rescue Association; and the Mine Rescue Veterans of the Pittsburgh district.

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Post-Mortems

—From page 58

lift the hose from the sand. The outside man misunderstood. Thinking the others had asked for more air, he opened the valve further, thus moving more vapors.

One of the inside men tried to reach the manhole, but fainted. The other reached the opening and was helped out, but the man helping him fainted and fell. A plant operator donned a mask and removed the unconscious man from inside the tank.

Investigation. The company found that the men working inside the tank did not have tank entry permits and that the air hose was badly placed.

Comment. The foreman on this job should have known that it was a hazardous operation. The men in the tank apparently realized that the H_2S gas was dangerous, for they did put an air hose into the tank.

Standard procedure should have required a tank entry permit. These men then would have been equipped with respiratory protection and life lines. If possible, the tank should have been decontaminated and the men given thorough job instructions.

Shall we call this unsafe work practices? Or lack of supervision? Or lack of job procedures?

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MAYNARD RIECK, student, Rt. #1, Sheboygan, Wis. — electric shock.

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PETER BISSOON, fire & safety service man, United British Oilfields of Trinidad, Trinidad, B.W.I.—drowning.

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Safety Panel

—From page 80

greatest source of information, however, is our own experience which helps us decide where we should have the protection and what it should be.

5. We have no employee committees as such. We do have joint labor-management safety inspection committees. The views and experience of employees on each job have been helpful in coming to a decision as to the type of protection required on their jobs.

6. Salesmen of personal protective equipment (safety helmets, safety toe shoes, eye protection, etc.) are very helpful especially as regards new or improved equipment their companies have developed. Machinery equipment salesmen, on the other hand, are more interested in highlighting their machines' capacity and/or the quality of the product produced and at a price that includes only the bare essentials. Safety is a question of degree and there is considerable variation in the extent to which different machines are guarded. By and large, it has been through the insistence of our people that manufacturers have installed safety devices on the equipment they sell to us.

Salesmen can be more helpful to the accident prevention movement if they and their companies gave greater consideration to the safety of the employees who will eventually operate their machines, incorporate the protective devices in the design and include their cost in the base price of the machine.

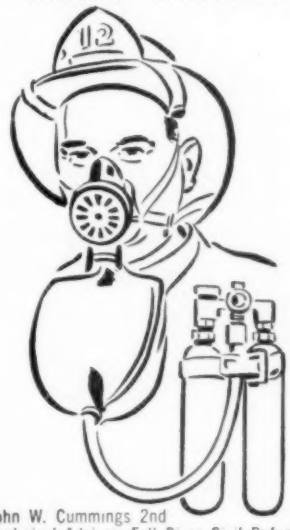
MR. POLLARD:

1. Much of the success of National Gypsum Company's safety effort comes as the result of co-operation by the several major divisions of the organization. For example, Research will develop a new product or new use for an established product. In writing up their specifications, they include necessary safe procedure. Engineering is called on to design a plant for the manufacture of the product. Their work includes complete guarding, fire protection, layout for housekeeping, etc. Purchasing follows through when ordering new machinery and equipment. As an illustration, all fork trucks are

Fall River Fire Department uses life-saving

Pocketaire

BREATHING APPARATUS



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Fall River Civil Defense bought three masks in 1954 and six in 1955. These masks are in service in the Fire Department. It intends to purchase a substantial number more.

It has been interesting to note that in smoky fires, when unprotected men have been knocked out or reduced to copious tears, men wearing "Pocketaire", without goggles, have experienced little or no lachrymation and *no after effects.*"

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There is no safety department as such. The director of safety works as a staff member of the Operating Division. He is frequently contacted to advise and recommend in these matters as they arise in other divisions.

2. There are 39 plants in the company and many of them have a purchasing agent. You might best describe the arrangement as decentralized—centralized control for purchasing. Certain standards are followed by all. Home office control is exercised in many major items. Plants handle local buying of supply items. Plants handle local buying of supply items in line with policy.

3. All plants have copies of contracts entered into covering nationwide purchasing. These are arranged through the director of purchases. He includes necessary reference to safety as needs arise.

4. Many sources of help are used in purchasing. All other factors being equal, service rendered by manufacturers is the determining factor. Nothing takes the place of experience within the company. Nevertheless, advice is sought from insurance brokers, engineering representatives of insurance carriers, and governmental agencies as problems develop.

5. Experience of plant people is regularly called upon when decisions must be made. In such cases, the plant manager would consult with the responsible people in his organization for their opinion and pass this along to the administrative office as the basis for action.

6. Salesmen are most helpful once they recognize that it is beneficial for them to take the time to demonstrate, train, check performance, particularly at a plant. Here again, the importance of service in determining source of supply is emphasized. The more this is done by sales people, the better off they will be.

It is interesting to note that many manufacturers still are surprised when the company requests safety factors in connection with purchases. There is much educational work necessary before this is given proper attention. Even such an item as color shows that many producers are not yet aware that a standard code exists for their guidance.

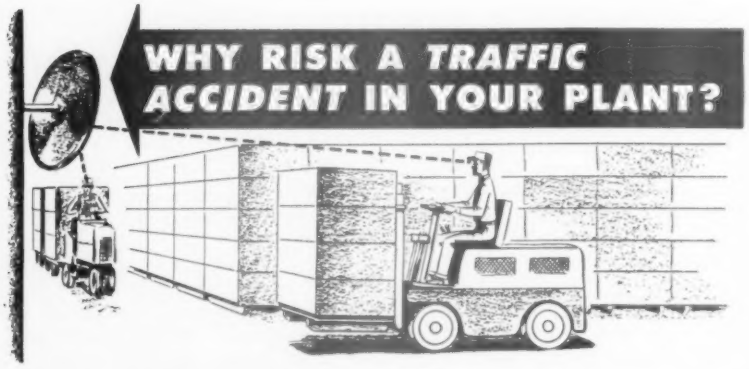
When industrial management makes its interest in safety clearly understood through the good work of its purchasing department, a major contribution is made that is directly reflected in accident experience. Certainly, it costs more money for built-in safety. National Gypsum has yet to have this affect its policy for safe, efficient operation.

MR. WILSON:

When a company buys tools and equipment, safety is obviously a factor to be considered, just as it is a factor to be considered when its design and planning engineers devise and erect installations.

A safety department, of course, is usually not staffed with experts either in buying or in engineering design. But it can furnish to specialists in these fields valuable advice about its own special area of accident-prevention.

Cooperation, of course, is the keynote. A safety staff with a "lone-wolf" complex won't be very successful in this area. It has a point of view to present—and an extremely valuable point of view—but it is



KLEAR-VU SAFETY MIRRORS are the answer to the dangerous blind corner problem in your plant or warehouse. They are also adaptable for outdoor use in your parking lot, loading dock area or other points where traffic converges.

Mounted at cross aisle intersections, entrances and exits at a height of 8 to 10 feet, Klear-Vu Safety Mirrors clearly reflect oncoming intersection traffic to both power truck operators and pedestrians.

Style	No.	Dimensions
Circular Convex Glass	120	12" dia.
Circular Convex Glass	180	18" dia.
Circular Convex Glass	240	24" dia.
Circular Convex Glass	300M.R.	30" dia.
Circular Convex Glass	360M.R.	36" dia.
Flat Glass Rectangular	918	9"x18"
Flat Glass Restangular	1640	16"x24"

M.R. indicates metal rim.

Available in either convex or flat glass styles, the mirrors are easily installed and quickly adjustable to any desired angle.

LESTER L. BROSSARD CO.
540 N. MICHIGAN AVE., CHICAGO 11, ILL.

Write for Bulletin.

only one of several that must be considered.

How may safety help with purchasing?

First, it can assist in determining the need for safeguards and the elements making for safety that should be included in the materials and equipment purchased.

Next, it can help in the preparation of guides or standards.

In the area of safety equipment itself, of course, the safety department should have very definite ideas of what is acceptable based upon its own studies and experience.

Recognized national standards of ASA, NFPA, and many of the engineering societies and industrial associations serve as a guide to engineering, purchasing, and safety. They often eliminate controversy and frequently provide the framework for a company standard. Some of the industry associations — American Gas Association and American Petroleum Institute are good examples —provide some of the best criteria available.

Employee committees have provided many valuable suggestions for improving working conditions and procedures. They also can be extremely helpful in encouraging the use of safety devices and the observation of safe practices.

Nevertheless, a sound safety program begins with sound engineering-planning and "purchasing for safety."

The primary interest of the salesman is sales. He will naturally sell the safety features built into a product, but if the manufacturer has not incorporated such features, he must try to sell his product without them. An experienced safety staff can help a purchasing agent cope with this problem and at the same time assist the salesman and the manufacturer in ascertaining the design features required to make a product acceptable.

The vigilance and follow-up of the safety staff will make possible a continuing program that is essential in the prevention of accidents.

MR. NICHOLS:

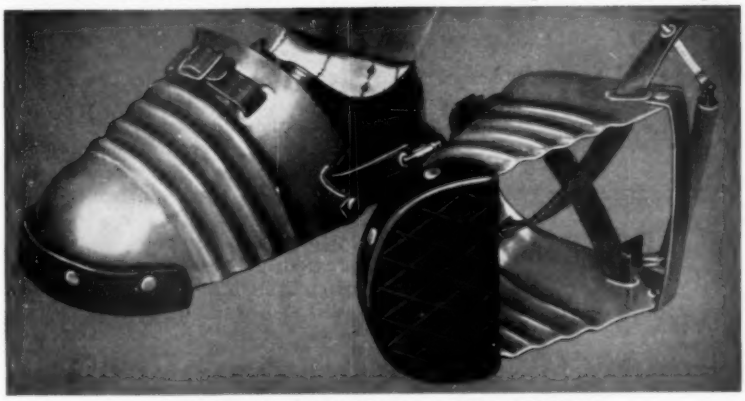
1. Our Central Safety Department is given an opportunity to consult with the engineering designers during the planning and layout stages of new plants and also for new processes or equipment that may be installed in existing plants. It is during the engineering design stage that our best work can be done because the actual purchase of materials and equipment is arranged only after specific lists of materials are completed.

2. We have many manufacturing plants and there is some degree of authority delegated to each in the matter of purchasing of supplies and equipment. Our Executive Office Purchasing Department negotiates purchasing of major items, also of materials and supplies which are used in many plants and also makes national purchase contracts for materials which are purchased continuously by the operating plants.

Personal protective clothing and equipment are purchased (many individual items) in most plants as needed, but after the type, quantity and brands acceptable have been discussed and agreed to with the Safety Department.

3. Equipment and materials which cannot be purchased at will by the

FOOT-TOE-LEG Protection by "Sankey"



"SANKEY" IMPROVED FOOT GUARD

The metal shield (above) is designed to furnish a maximum amount of protection to the entire front of the foot—not merely the toes alone, but also to the instep against hazards from falling, rolling or flying objects, or from accidental tool blows.

- Absolute freedom of leg motion, utmost protection and comfort come with the leg-contour shaped "Sankey" fibre shin guard (right).
- Fibre knee-shin guard (right) provides flexible knee movemsnt on jobs with both knee and shin hazards.

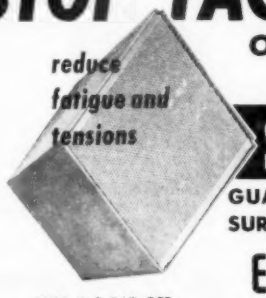
For more information write today

ELLWOOD SAFETY APPLIANCE CO.

225 SIXTH ST.,—NSC ELLWOOD CITY, PA.

STOP FACTORY NOISE

reduce fatigue and tensions



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GUARANTEED RESULTS! FREE ENGINEERING SURVEY, ANALYSIS and ESTIMATES. *Write Today.*

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MATERIAL
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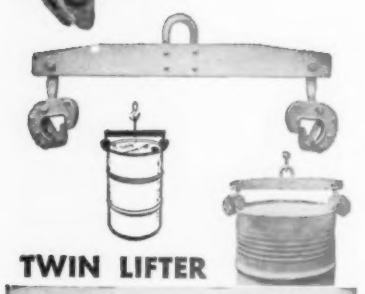


For Interesting Information write

MERRILL BROTHERS

56-28 Arnold Ave., Maspeth, N. Y.

Purchasing Department of the plant are either referred to the Home Office Purchasing Department for handling, or, a purchase order is used by the plant in accordance with the provisions of a negotiated national purchase contract.

Specifications for safety materials and equipment are, in most cases, not detailed, but are agreed on in conference between Home Office Safety Department, Home Office Purchasing Department and the safety engineer at the plant.

4. We do, of course, rely on ASA Standards for many items of safety equipment, because we have confidence in such equipment, knowing that it is the best that can be produced that will meet the greatest number of requirements of the greatest number of interested parties.

We maintain a constant watch, also, on the advertising of new products in safety literature, always ready to give a fair trial to any new product that seems to offer qualities not obtainable in products previously used. We find that it is of great help to us to see a product new, or old, on display, as for example, at the National Safety Congress or local shows.

Approval by the Underwriters' Laboratories or Factory Mutual Laboratories is of great importance to us. We make certain that our safety clothing and other personal protective equipment, as well as other materials and supplies carry the mark of such approval. Needless to say, the Bureau of Mines stamp of approval is of prime importance.

5. The opinions of such committees as well as the opinions of individual employees are received and given as much consideration as possible in guiding our choices of safety protection equipment. Many worthwhile suggestions come from such sources.

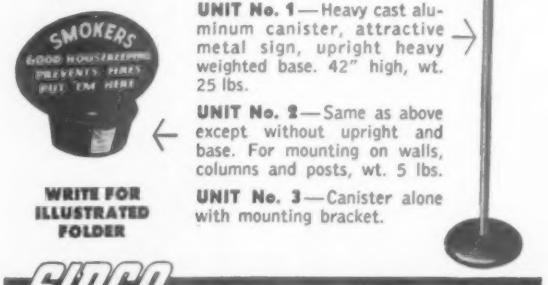
6. We have found salesmen to be most helpful and we make it a point to use their technical knowledge and ability when we are seeking a solution to some problem. We find that they have highly specialized knowledge, as it relates to their product, about safety problems which is of considerable value to us. We have not relied on their knowledge of industrial operations in any situation, except for the most common ones.

We have at times invited salesmen

SOLVE YOUR PLANT
SMOKING PROBLEMS
with SIPCO dunking stations

CIGARETTES,
CIGARS, MATCHES
IMMEDIATELY EXTINGUISHED

Like 60% of the leading U.S. industries, you, too, will find that safe and economical SIPCO Dunking Stations prevent fires — promote good housekeeping on the job. No smoldering — no fire hazards! Built specifically for hard industrial use, and abuse, and will last a lifetime.



UNIT No. 1 — Heavy cast aluminum canister, attractive metal sign, upright heavy weighted base. 42" high, wt. 25 lbs.

UNIT No. 2 — Same as above except without upright and base. For mounting on walls, columns and posts, wt. 5 lbs.

UNIT No. 3 — Canister alone with mounting bracket.

WRITE FOR ILLUSTRATED FOLDER

SIPCO STANDARD INDUSTRIAL PRODUCTS CO.
DEPT. S, 920 N. GARFIELD AVE. • PEORIA, ILLINOIS

to demonstrate their products before conference groups of our own safety engineers and have asked them to participate in the agenda of such conferences by bringing displays of safety devices and equipment to the conference room for the duration of the meeting.

We try to have our own safety engineers become well acquainted with salesmen so that we can make full use of their technical knowledge and also to make sure that we are aware of the best and newest equipment available.

MR. HAYDEN:

1. In all new processes and during the purchase of new equipment, the Safety Department is notified by the Methods Department as to what the machinery will entail and what the layout will be. We then go over the system as it is usually an entire system rather than an individual machine, and pick out all the pinch points necessary for guards, along with the other areas, as required under the American Standards system.

2. At Columbian, we operate four plants, with a central purchasing office to handle all purchases, except safety equipment.

3. Specifications on approved lists of safety equipment originate with the safety department, are approved by management and then administered by central purchasing.

4. We operate under ASA Standards with the help of the insurance carrier on special problems such as dust control, testing for lead poisoning, etc. Safety periodicals are passed on to superintendents to maintain their interest in the program.

5. Overall safety policy is administered by a group formed from management, operating superintendent, and the Medical and Safety Departments. We use employee committees and have found them helpful to a limited extent in individual areas where assigned but find it is more helpful to get their approval of the use of an idea rather than to get them to decide on protection needs.

6. Salesmen are turned over to the safety department so that we are kept well informed on what is

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INDUSTRIAL
GLOVES
AMERICA'S MOST POPULAR HAND SAFETY GLOVES
• Permanent NON-SLIP on all 5 fingers and palm. Highly efficient embossed surface is integral part of glove.
• Curved FINGERS for comfort and easy use.
• Tough and Durable. Longer wear in every pair.
GENUINE RUBBER LATEX OR NEOPRENE LATEX
SEND for catalog and prices of complete Industrial Glove line.
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Safety Designed...
with comfort in mind!

the
McDonald Rialto
Safety Ladder
Shoe

makes any ladder
DOUBLY
SAFE!

10 suction cups firmly grip smooth, wet and slippery surfaces.

Specially designed steel toe digs into snow, ice, gravel.

The McDonald Rialto Safety Ladder Shoe installs rigidly and permanently on any ladder with three connecting bolts – not merely screws. The greater level contact surface and suction cup foot make the ladder doubly difficult to tip – permit safe operation on surfaces normally inadequate for ladders. Send coupon for information and prices.

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B·F·McDonald Co.
Manufacturers & Distributors of Industrial Safety Equipment

Please send information and prices on
RIALTO SAFETY LADDER SHOE.

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SPA-FLA Gives you ... WELDING PROTECTION and SAFETY!
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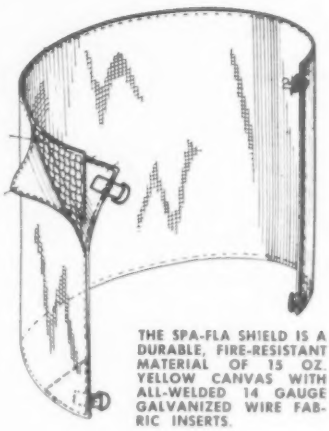
KNOW YOUR ABC's OF WELDING SAFETY BY USING SPA-FLA.

A. APPROVED by Underwriters laboratory.
B. BETTER and more Rugged Construction.
C. COMPACT, and completely Portable.

MAKE A SPA-FLA SHIELD PART OF YOUR WELDING CART

The last word in welding safety and portability is SPA-FLA as part of your on-the-job maintenance welding cart. SPA-FLA is easily carried from job to job, and should be the safety habit of every maintenance welder.



THE SPA-FLA SHIELD IS A DURABLE, FIRE-RESISTANT MATERIAL OF 15 OZ. YELLOW CANVAS WITH ALL-WELDED 14 GAUGE GALVANIZED WIRE FABRIC INSERTS.

SPA-FLA is Flexible enough for shaping around even the most out-of-way welding areas and will stand formed around any job or on "ring stands" for rough floors. Its rugged construction is meant for long, hard use.

SPA-FLA is excellent for ventilation on inside jobs and as a windbreak and protection for outside use.

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Optically Perfect ... Premium Quality
EYEGARD Lenses and Plates
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EYEGARD GLASS . . . finest optically ground and polished lenses protected by lifetime guarantee against defects. Non-Shatterable and Glare-Filter.

AMERILITE . . . made of a synthetic resin compound that has half the weight and twice the strength of hardened safety glass. Shatter-proof . . . greater resistance to pitting.

ENDURON COVER PLATES AND LENSES . . . outlast glass 20 to 1 . . . shatter-proof, won't pit, crack or spot. Non-fogging, 30 times harder than other plastics . . . sheds spatter like magic.

All EYEGARD Lenses and Welders' Plates are made with the same painstaking care and accuracy as the finest optical lenses for prescription use. They are ground and polished by experts with years of experience to eliminate distortion and assure perfect vision, yet they are low in cost. Immediate delivery. Write for prices and literature.

Standard Size and Large Vision (4½" x 5¼") plates available

AMERICAN INDUSTRIAL SAFETY EQUIPMENT CO.
3501 LAKESIDE AVENUE • CLEVELAND 14, OHIO
Division of the Burdett Oxygen Co., Cleveland, Ohio

available in safety supplies. We have found salesmen very helpful.

Our great problem is the training of operator personnel. Because of the nature of our work we have found it necessary to insist that the Medical Department supersede Personnel in passing on physical fitness for individual jobs. Some day we hope to add mental standards.

Regardless of whether it is equipment, materials or people to run our plants, the Safety Department plays a big part in getting the most for management's money.

New Paint Resists High Temperatures

A NEW AND UNIQUE high temperature resistant paint has been developed at the Corps of Engineers' Research and Development Laboratories, Fort Belvoir, Va. Designed primarily for field application for the protection of diesel engine exhaust systems, it has proved even more satisfactory for plant application.

Senior Project Engineer Emil J. York states that the paint can be applied by either brush or spray and will air dry to handle within one hour. In its air-dried state, it provides excellent protection from rust and corrosion and after complete curing the protection afforded is practically unlimited.

The paint can be applied and cured in place by merely using the engine or it can be applied and cured immediately as in plant operation.

In tests conducted by a large manufacturer of heavy construction equipment the paint has remained in excellent condition after more than 18 months exposure at their proving grounds. Tests at the Engineer Laboratories show the paint to be in perfect condition after 1,200 hours exposure to temperatures in excess of 1400 F.

Major requirements for satisfactory performance are a clean and oil or grease-free surface, preferably blasted, and a controlled maximum dry film thickness of 2.5 mils.

There really is only one thing wrong with the younger generation. . . . A lot of us don't belong to it any more.

Invents New Type of Spark Arrester

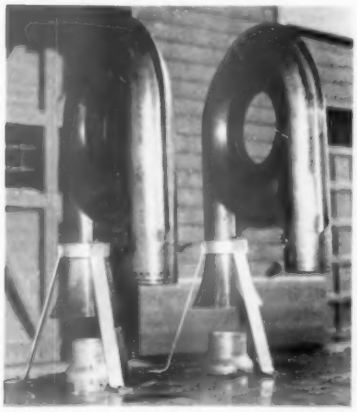
A NEW TYPE of spark arrester invented by Raymond Gill, a fire prevention inspector at McClellan Air Force Base, is designed to curb a common fire hazard in industrial establishments—exhaust sparks from internal combustion motors.

Ineffectiveness of a previous spark arrester used on ground power generators in hazardous areas at McClellan, resulted in the Air Force giving Gill a special assignment to do something about it.

Gill studied the inadequacy of the old "potato masher" unit previously used to catch sparks as they poured from the exhausts of portable generator units, and came up with a tuba-shaped arrester that seemed to be the answer.

When reasonably sure that the design was practical, he had a die made, from which the original 10 units were stamped out by a big drop hammer in the McClellan shops.

First real test of the experimental model was on the C-26 power generator cart, which is used to supply external power to a jet aircraft during fueling operations. These are very explosive



TWO GILL Spark Arresters on twin exhausts of C-26 ground power generator, used to provide electric power to start jet aircraft motors; also to pump fuel into or out of jet fuel tanks, and in checking aircraft electrical systems. Note flanged lower end of devices which are separated from but cover the two exhaust outlets. Sparks are drawn into the tuba-shaped arrestor and cyclonic action precipitates them as carbon particles.

BRIDGE THE "DANGER PERIOD" WITH HAWS EYE-WASH FOUNTAINS

Even though summoned medical aid arrives as rapidly as possible, time elapsing between occurence of eye accidents and a physician's care is too often the period when permanent harm is done.

Bridge this "danger period" with HAWS Emergency Eye-Wash Fountains that permit injured workers *instantaneously* to wash injurious matter from their eyes with clear water at safe *controlled* pressure.

Available with HAWS Drench Shower Attachment to form an "emergency first aid station" for your employees' protection. *All HAWS Safety Equipment is designed and manufactured in cooperation with leading safety engineers.*

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HAWS DRINKING FAUCET CO.

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Open steel flooring; welded or riveted pattern; fabricated in carbon or stainless steel, aluminum, monel and alloys.

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J-W COMBUSTIBLE GAS INDICATORS AND ALARMS

For testing selected danger areas, J-W portable instruments give dependable, troublefree service at low cost.

J-W Model G Portable Indicator—for easy spot checking of confined and inaccessible spaces.

Battery-operated. Soft aspirator bulb allows almost effortless sample drawing. Weighs slightly over 4 lbs. Automatically switches on and off with appropriate movement of aspirator bulb.

J-W Sentinel Portable, Audible Alarm—for continuous "watchdog" protection around any hazardous activity, indoors and out.

Indicates quantity of combustible gas build-up and loudly warns of dangerous concentration around such operations as welding and electrical repair, and when cleaning and repairing tanks and lines. Ruggedly built for versatile service.

J-W

For detailed data on these models and J-W instruments for fixed installation, contact the makers of top quality products for over 25 years:

JOHNSON-WILLIAMS, INC.

Palo Alto 9, California

Canadian customers, please write:
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conditions, especially when the fuel spills over.

These first 10 arresters were put through rigid tests on power generator exhausts for 90 days and the results caused officials to authorize the manufacture of 290 more for local use. Most of these original units are still in use.

Subsequent results have so impressed Air Force officials that the arrester is being used at several installations pending final approval for Air Force-wide use at Wright Air Development Center, Dayton, Ohio.

Gill recently was given special recognition for his achievement in the form of a $400 cash notable accomplishment award. He was given permission to apply for a patent with his royalty rights being deducted from units sold to federal government agencies.

The device was recently put through a 16-hour test at the U. S. Forest Service research laboratory at Arcadia, Calif., which rated it at 99.25 per cent efficiency. This test included feeding carbon particles into it in weighed amounts. These particles were then removed from the arrester, screened and reweighed to determine if any carbon had been lost into the air.

Other tests have been run at Stanford University of California at Davis.

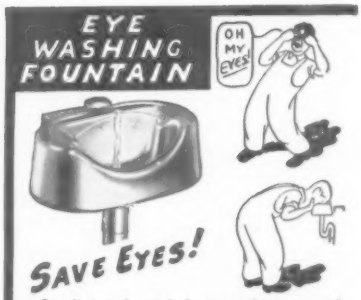
The Forest Service has started using the Gill arrester on its truck and bulldozer exhausts to prevent sparks in tinder-dry forests.

It has been approved by the Pacific Coast Fire Rating Bureau, and is being ordered by the California State Division of Forestry, and by western lumber mills.

Commercial manufacture and distribution of the Gill Spark Arrester is in the hands of the Erickson Products Company of San Francisco.

The factory is currently working on a plan to adapt it for use on all types of internal combustion engines. One such use under consideration is for U. S. Navy jeeps being used in the Naval Ordnance Depot at Port Chicago, Calif. Another is for chain saws, an adaptation which was requested by the California State Division of Forestry.

EYE WASHING FOUNTAIN



SAVE EYES!

Leading industrial doctors advise immediate washing with plenty of running water as the best first aid treatment for any chemical in the eyes. Records prove that washing with water for ten minutes or more, close to the accident, is necessary to reduce or eliminate eye damage.

Forehead operation leaves hands free to open eyelids so water can be directed wherever chemicals might be lodged. Sanitary white baked enamel bowl is resistant to most fumes.

Over 500 industrial plant installations have been made to date.

Write For Details.

VALVE
Chain Operated
Quick Action
Self-Closing

NEW EMERGENCY SHOWER

The B & A Shower is the quickest and most satisfactory way to saturate a worker with gallons of water the instant an accident occurs, to prevent a disfiguring burn—even a fatality.

Special shower head, no holes to clog—can be used where unfiltered water prevails.

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GLASS SLIVERS AND CHEMICAL IN EYES!

DISFIGURING FACIAL CUTS AND BURNS!

CUTS AND CHEMICAL BURNS ON ARMS AND BODY!

THIS HAPPENS WHEN UNPROTECTED GLASS BOTTLES ARE BUMPED

NEW LOW COST B & A SAF-T-BAGS

are widely used for the safe handling of glass bottles containing harmful chemicals; also the storage and recovery of expensive serums, biologicals, and other costly products.

Painful cuts, disfiguring burns, loss of eyesight, or even a fatality, do result from corrosive liquid splash and flying glass when unprotected bottles shatter.

5 PINT
1 GALLON
5 GALLON

Write For Details.

BENSON & ASSOCIATES, INC.

P. O. Box 7542, Dept. N.S., Chicago 80, Ill.

The spark arrester is being widely used by commercial air lines, and inquiries are coming in from throughout the world.

A large insurance company is recommending its use on wheat harvesters and tractors used in harvest operations throughout the wheat growing areas; and a large farm machinery manufacturer is considering making it standard equipment.

Plans are being made to patent the spark arrester in Canada for distribution throughout that country, Australia and New Zealand. Requests for information have been received from Mexico, France, England, Italy, Spain, and Japan.

"Wet Water" for Hard-to-Reach Fires

Water, in spite of its recognized shortcomings, remains the universal medium for fighting fires. These shortcomings have been reduced through improved techniques.

One forward step was the "fog-spray" nozzles. Another important development was the discovery that effectiveness of water was increased through the addition of wetting agents.

Small quantities of wetting agents lower the surface tension of water and allow it to soak quickly into materials. The amount of wetting agent required to produce these effects is so small that the problem of supply at the fire is inconsequential. A few gallons of concentrated wetting agent are sufficient to treat several thousand gallons of water.

Fires that hide inside dense or compressed materials—as in saw dust, stored paper, cotton bales, stacked or baled hay—are difficult to extinguish because it is hard to get water to the heart of the fire. In such materials water cannot be forced in effectively from high pressure hoselines. The surface of the material breaks up the stream while the fire burns on.

In fires of this sort, a large area is frequently involved and smothering is out of the question. Even if the outside could be blanketed momentarily by an air-excluding layer of some material, there is so much occluded air within that the

Play it SAFE . . . specify

Glendale Industrial Safety Equipment

Visit us at the NATIONAL SAFETY CONGRESS AND EXPOSITION

CONRAD HILTON HOTEL CHICAGO

OCTOBER 22–26
BOOTH 303

PLANT VISITORS' SPECTACLES
(Featherweight One-Piece Construction)

Specially designed and priced as plant visitors' goggles . . . fit all faces, men and women alike. Lenses are optically perfect and molded to .060 thickness. They are impact resistant and afford adequate safety protection for light grinding, spot welding and other semi-hazardous operations. Attractive styling and special lightweight construction make this the goggle that everyone wants to wear. May be worn comfortably over prescription glasses.

Write for Complete Catalog

LENDALE OPTICAL CO., INC.

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STRETCHERS

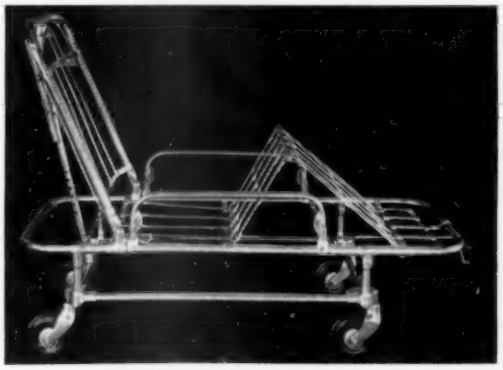
AND A COMPLETE LINE OF AMBULANCE COTS. *We Manufacture All Kinds.*

WASHINGTON

Greatest Name in Cots

COT & STRETCHER EQUIPMENT TO FIT ANY VEHICLE.

OR FOR ANY FIRST AID ROOM REQUIREMENTS.



← THIS NEW WASHINGTON KONTOUR COT

offers exclusive features not available in any other cot! The cot can be carried properly, no need to keep head low and foot end high. It easily shortens from 75" to 52", for easier turning, and at the same time patient is made more comfortable. Both patient and mattress stay in place without straps or holding, no matter how steep the carrying angle. The patient is more completely relaxed, feels more secure, with no fear of falling! A simple hand crank raises the bed section under the patient's knees, as the cot length is shortened.

Let WASHINGTON's progressiveness and reputation for 'finer' equipment be your guide in buying the BEST.

— SEE YOUR JOBBER TODAY OR WRITE FOR FREE CATALOG —

WASHINGTON PRODUCTS CO.

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SHOWS
CO Hazard
INSTANTLY

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- Requires no color matching or reference to comparator scales
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- Simple in operation; easy to use
- No special training needed

MONOXOR CARBON MONOXIDE DETECTOR

REPLACEABLE DETECTOR TUBE CONTAINS YELLOW CHEMICAL WHICH TURNS BROWN WHEN AIR "SNIFFED" THROUGH DETECTOR TUBE BY PENCIL-SIZE ASPIRATOR CONTAINS CARBON MONOXIDE

The MONOXOR detects presence of CO, even in concentrations as low as 100 parts CO per million parts of air. Particularly useful for a spot-check of carbon monoxide contamination in garages, vehicular tunnels, mines, industrial plants and wherever gas appliances are operated.

$22.70
Price Complete—includes MONOXOR Instrument, 24 Detector Tubes, 6 Tube Caps, in Pocket Case

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New
DRY TAMP
PERMA Mix Floor Patch

Don't stop traffic to repair floors—use Permamix, the new all-temperature DRY TAMP floor patch.

DRY TAMP MEANS SPEED • No sticky mass to dig out of the drum or to handle • Permamix dry pours • sets instantly • feather edges perfectly • no production delays • non-skid surface.

ALL TEMPERATURE • Won't freeze • can be stored or used in *any* temperature • will store indefinitely • a stock room item • will not "set" in drum whether open or covered. Mistakes just can't happen. Tamp in place and traffic rolls.

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fire would not be affected. Unless water can be brought to the heart of the fire, the only hope of avoiding total loss is to remove the combustible material that the fire has not yet reached. This may be possible in coal fires, but in most materials there is not time for salvage.

The wetting agent has been effective in extinguishing fires of this type. Water containing as little as one-tenth of one per cent of the wetting agent soaks immediately into the combustible material, covering every particle in its path with a protecting film of moisture. In an amazingly short time, and with a comparatively small consumption of water, the entire pile is wet through and the fire is out.

The wetting agent may be added to the water in a number of ways. When the equipment is available, it may be fed into the hoseline through a proportioner. In the absence of a proportioner, a siphon tube may be used. When the water supply comes from a tank instead of a hydrant, the required amount of agent may be added directly to the tank.

The quantity recommended varies with the type of fire, but as little as one-tenth of one per cent has proved ample in many cases. Somewhat higher percentages are used where a foaming and emulsifying action is needed.

Wetting agents, because they bring about excellent contact between water and metal, have a tendency to cause corrosion of metal containers. For this reason it is usually undesirable to store water containing a wetting agent in galvanized or plain steel tanks for any considerable time, unless a corrosion inhibitor is provided. When a suitable inhibitor is present, water treated with this agent is less corrosive than ordinary water and may be left in the tank with perfect safety. If an inhibitor is not used, recommended practice is to add the agent to the water at the scene of the fire, rinsing the tanks thoroughly with plain water after the fire has been extinguished.

Selection of the inhibitor to use in any specific case depends upon the equipment in which it will be used, and other considerations.

For this reason no general recommendation is made for a universal inhibitor.

The agent itself, in concentrated form, is available in commercial quantities to those who wish to compound it for their own use. It is not recommended for use on every fire. Where the burning is in the open and easily reached by the water from hose streams, a wetting agent does not help appreciably. On some solvent fires, particularly those involving extremely volatile materials, the use of wetting agents has not proved entirely effective. But in a majority of cases the agent can help effectively.

Announce Awards for Aviation Progress

TWO INTERNATIONAL awards designed to benefit the aviation industry and the public have been announced by Greer Hydraulics, Inc., New York International Airport, Jamaica 30, N. Y.

The Public Relations Award will be made for the outstanding contribution for the suppression of noise originating from jet aircraft between now and delivery of the first commercial jet transports in 1958. A plaque will be presented to the winning entry late in 1958 with an honorarium of $1,000. The next Public Relations Award to help solve another major problem will be announced at that time.

The Maintenance Award will be made for the best idea, proposal, or design leading to the solution of an aircraft maintenance problem. It may include a technique, design, device, or instrumentation in the tear-down, build-up, and/or testing of aircraft engines and accessories.

Details of these awards may be obtained from the company.

It's a safe bet that the husbands of the women who are on the list of the ten best dressed women won't end up on the list of the ten best dressed men.

A woman was telling a neighbor about how successful her husband was in business. "He's so busy at the office they're appointing a receiver to help him."

Protect lives and material from FIRE WITH AN ASBESTOS FIRE BLANKET

In emergency this new FITE RITE ASBESTOS FIRE BLANKET is available instantly.

Stored in metal container, painted brilliantly red, and may be hung on the wall just like a fire extinguisher.

Blanket can be used to

- Smother clothing fire by wrapping around victim.
- Shield fleeing persons from flaming area.
- Beat out or smother flash fires.
- Cover machinery and material, protecting them from flying embers or sparks, or nearby welding.

This fire fighting and protecting equipment is needed in every plant. Bulletin sent on request.

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Fits all old and new model Localites with half shade reflector

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Finest Seeing Tools Ever Designed for Machine Tools, Assembly, Inspection

Frictional arm and collar disc joints give flexibility of a thousand positions to direct light exactly as wanted. Rugged construction with heavy duty industrial socket Levolier switch and universal base. Millions in use for fast, accurate, safe seeing.

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Localites are available through wholesalers everywhere

LOCALITE fostoria for Light ON the Job

When Lights Go Out

How to Avoid Hazards of Sudden Darkness

RELIANCE upon electric lighting is so complete and automatic that it is only with difficulty that we can be made to face the problem of what happens and what to do when the lights go out. Yet the problem remains a serious one.

When the lights go out at home we scurry about to find candles and light them. But a power failure in a crowded theater or hospital operating room, or an airport runway or hazardous assembly line, can result in panic, disaster, and death.

The danger of panic under such circumstances need not be elaborated, but the possibility of financial loss resulting from failure of lighting is not so well understood. Loss of use and revenue, pilferage, property damage, public liability claims, and workmen's compensation claims are but a few of the forms of loss which result from failure of illumination.

In 1911, when gaslight still burned in most of the theaters along Main Street, the Ohio legislature enacted a bill providing that:

"If gas lighting is used in the auditorium and not kept lighted during the entire entertainment or performance, there shall be at least two separate and distinct services where practicable, fed from separate street mains—one service of sufficient capacity to supply emergency lights and the other to supply all other outlets in the building."

Cable ducts have now replaced the gas mains, but the requirement of "two separate and distinct services" remains an essential part of any emergency lighting system. The critical point, however, is not whether these two services are supplied from "separate street mains," but whether the street mains in turn are supplied from two separate sources of energy.

Two-thirds of the states do not recognize this as a problem. In Missouri, where it is a crime to maintain a common bawdyhouse within 100 yards of a building "ordinarily used as a church," it is not a crime to maintain a theater in which no provision is made for emergency lighting. Yet hundreds of persons lost their lives in the "awful darkness" of the Iroquois Theater fire of 1903 because "emergency lights were missing."

In Delaware it is not against the law to crowd hundreds of children into a circus tent in which no provision is made for emergency lighting of exitways. Even in states where matters closely related to emergency lighting are treated by law, emergency lighting itself has been ignored.

Authoritative information on the subject is available to state legislators in the so-called National Building and Safety Codes. Many of these codes have already been enacted into laws, but the great variance in the adequacy of their emergency lighting requirements demands that they be approached with some caution.

The National Electrical Code, which is a collection of rules for the "safeguarding of persons and of buildings and their contents from hazards arising from the use of electricity," does not in any sense of the word "require" emergency lighting.

The Code does include directions on how to install emergency lighting systems and supplies answers to practical questions such as:

—What must be the capacity of the emergency lighting system?
—What kinds of systems may be used?

Since the Code does not require emergency lighting, it cannot consistently state where emergency lighting systems should be installed. What it says, therefore, is that "Emergency systems are generally installed in places of assembly where artificial illumi-

—*To page 147*

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For maximum variety, refer to the 1956 Directory of Occupational Safety Posters. There you'll find 756 top-notch selections on a great variety of subjects.

Copies of the Directory are available at 50 cents each—write Membership Service, N.S.C.

JUMBO POSTER for NOVEMBER 1956

The Jumbo poster, issued monthly, is designed for outdoor use and is available to members on annual subscription but is not stocked. Its actual size is 9' 11" by 11' 8".

SAFETY BANNER FOR NOVEMBER, 1956

Here is the attention-getting, monthly cloth banner. Available in two types—indoor and outdoor—both are identical in size (10 feet long by 40 inches high), have the same general message and multi-color design. Indoor type is of sturdy drill with grommets for easy hanging, while the outdoor banner is of extra heavy drill, with wind vents, and has strong stitched-in rope for durability.

0811-A 8½x11½

This new four color poster is illustrative of the 72 four color posters shown in the 1956 Poster Directory.

Electrotypes of poster miniatures on this page are not available, nor can payroll inserts be supplied.

Posters below are printed in two or more colors

(Available only in sizes indicated)

0894-C 25x38

0843-B 17x23

0828-A 8½x11½

0638-A 8½x11½

0809-B 17x23

0628-A 8½x11½

0813-B 17x23

0844-A 8½x11½

V-0838-B 17x23

Electrotypes of payroll inserts can be furnished in all poster illustrations shown above.

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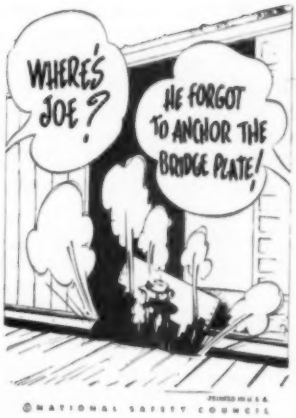
0617-A 8½x11½

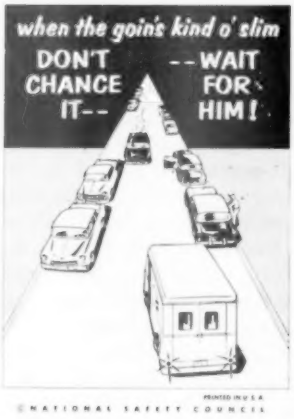


0840-B 17x23

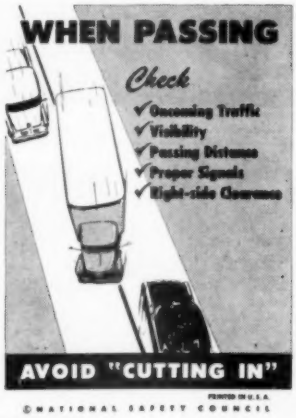
0593-A 8½x11½

T-0805-C 25x38
T-0806-A 8½x11½

V 0839-B 17x23



V-0836-A 8½x11½



V-0837-A 8½x11½

V-0835-A 8½x11½

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Millions for Prevention

Can 100,000 employees work a whole year without a disabling injury?

That's an ambitious goal but the Du Pont Company is spending more than $4 million this year in a determined attempt to reach it. That does not include the far greater, but incalculable, cost in effort.

No organization of this size has yet realized such a goal, so far as Du Pont officials know. They are trying to get there in two stages: first, an injury-free month, and beyond that, the elusive goal of a full year.

Du Pont's over-all injury rate is exceptionally low; the safety program is intensive and continuous. A perfect record would mean 100,000 people (including those on government-owned plants) getting along on the job without anybody being hurt — men and women who not only face normal living hazards but also are concerned with the production and compounding of potentially dangerous chemicals in addition to working with the normal tools of production like steam, electricity and heavy machinery.

"So long as a single employee is seriously injured at work we cannot be satisfied," Vice-President Robert L. Richards said in a message to employees. "That a goal of 'no injuries' is entirely realistic and can be achieved is borne out by the fact that 70 of the company's plants and laboratories operated throughout the year 1955 without a single disabling injury."

The Company's injury rate has been dwindling toward the vanishing point but has not yet reached it. The record has brought the company national recognition over the years, including now for the twelfth time the Award of Honor from the National Safety Council—the only company so honored that often.

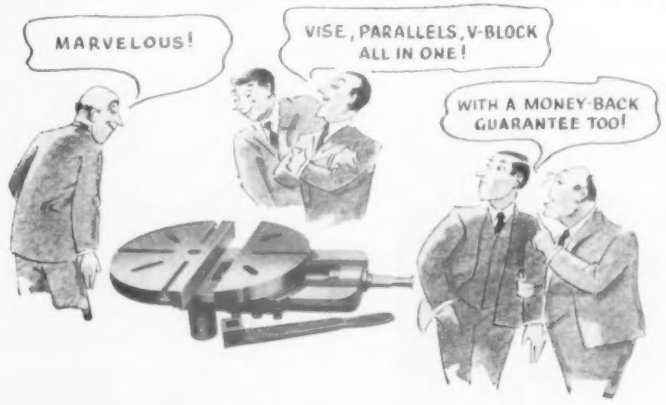
In 1955, a "second best" year, 77 employees had disabling injuries on-the-job. Almost exactly four times as many—307 of them —were hurt in falls alone around home. Altogether, they sustained 1,651 injuries off-the-job.

In terms of rate, which provides a sound comparison, on-the-job injuries came to .39 per million man-hours worked while injuries away from work added up to 5.36 per million hours of exposure—more than 13 times as much.

The company is also encouraging employees to carry their training in safety off-the-job with them. One of the national awards it received last year was for activity in prevention of home accidents.

Aside from the obvious individual welfare of safety, Du Pont has found its aggressive campaign to prevent personal injuries to be good business, although this cannot be calculated financially. The firm believes that the mutual interests between the men and women operating its chemical processes and those in the laboratories and offices and the management lead to confidence and teamwork which is reflected importantly in the success of the enterprise. This tangible interest in the physical well-being of em-

SAVES TIME! SAVES FINGERS!



MODERN Safety Drill Table!

FREE TRIAL OFFER
write for full details!

The handiest, fastest, safest way to make drilling set-ups! Just drop in and drill—all shapes—all sizes. We guarantee it will save its cost in labor alone in six months—to say nothing of the savings from uninterrupted production. We'll put one in your shop for 30 days. Not one penny cost to you if you aren't enthusiastic. Literature on request.

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CUT DOWN NOISE
WITH THE SMR
EARSTOPPER

Soft, comfortable, resilient, the SMR EAR STOPPER adjusts itself to all shapes, turns and movements of the ear canal. Will not slip out of the ear. Has a long life and is reasonable in cost. Furnished in a plastic case. Forty-five cents per set in gross lots

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1995 Beverly Blvd., L. A. 57, Calif.
SMR

Free sample when requested on company stationery.

ployees does much to strengthen their loyalty to the company.

The way the Du Pont safety program works, every member of supervision from the newest foreman to top management is held personally responsible for the safety of men and women working with him. This makes it an integral part of every job. Ability to get work done without injury is an important consideration for promotion.

Likewise, every employee is also held responsible for the safety of himself and the people around him. The individual is the keystone of the entire program and is expected to do his own job safely. Actually, the company feels that its record is the result of this individual effort by employees.

The $4,000,000 which the company is spending for safety this year covers only the specific parts of the program which can be calculated separately. This includes such things as safety prizes, some of the central planning, safety supervision, meetings, equipment and literature.

The costs of such things as research on process safety, changes in the design and construction of equipment for safer operations, and the like usually cannot be set apart. Nor can most of the time employees put on safety be measured, and that is the most costly item.

When Lights Go Out

—*From page 142*

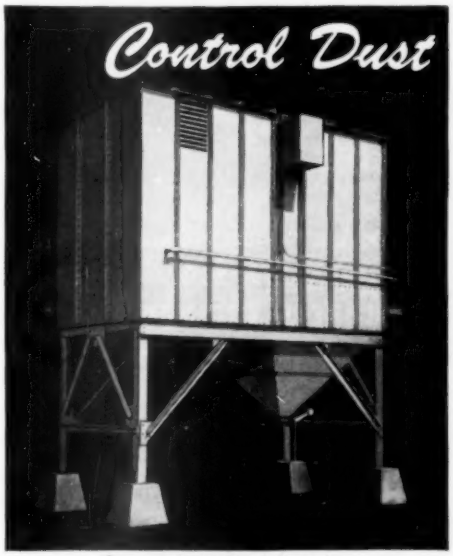
nation is required, such as buildings subject to occupancy by large numbers of persons, hotels, theaters, hospitals, and similar institutions.

The Building Exits Code clearly states that the demands of safety to life require emergency lighting systems in four kinds of buildings: Places of assembly (with certain exceptions), department stores, hotels, and hospitals.

As its title implies, the Building Exits Code by a governmental agency automatically makes emergency lighting "from a source independent of the general building lighting" a legal requirement in the occupancies listed in Section 1203 of the code. Then, as a kind of extra dividend, Section 1203 also requires that all emergency systems be installed according to the requirements of Article 700 of the National Electrical Code. Adoption of the Building Exits Code, therefore, entails legal enactment of Article 700 of the National Electrical Code.

Together, the Building Exits Code and the National Electrical Code afford minimum standards of safety for coping with the hazard of sudden darkness in crowded locations. The first tells where emergency lighting systems must be installed and the other tells how they are to be installed.

The emergency lighting requirements of the various building codes may be stated very briefly in terms of the two safety codes. The National Building Code of the National Board of Fire Underwriters makes no reference to emergency lighting. It states that the lighting for public and institutional buildings shall be "so arranged and supplied that the



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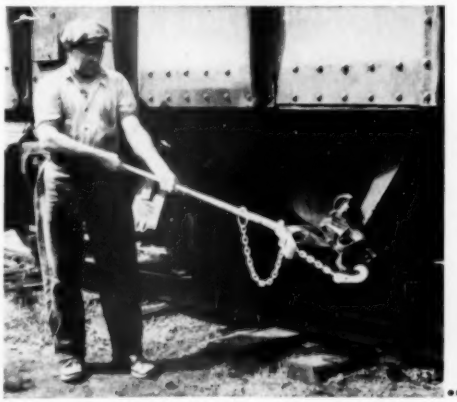

AN INVITATION

to ruptures, strained backs, smashed fingers and other injuries—old fashioned hand, foot and bar methods of closing latch-type-lock, hopper-bottom car doors.

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PATENT APPLIED FOR

IPCO "WASH-AWAY" BOTTLE

Medical authorities agree that immediate washing with plain water is the first requisite in the event of corrosive material entering the eyes, seconds saved between contact and eye washing being a determining factor in the degree of eye injury.

The IPCO WASH-AWAY BOTTLE was developed as a means of providing individual workers or small groups with a supply of water within reach for immediate washing of the eyes in the case of accidental exposure. . . . Bottle of unbreakable Polyethylene plastic provides a continuous flow of 7 to 8 minutes duration. A sound first-aid procedure.

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"CAN YOU SEE TO WORK?"

—if he reported with a patch over one eye.

But what happens when one of your workers LOOKS normal, but SEES with only one eye? More have this trouble than is supposed.

Plant managers who are now checking to make sure every employee's eyes are *working efficiently TOGETHER*, report 44% fewer accidents . . . 20% less spoilage . . . increased production.

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interruption of service on any circuit inside the building will not result in total interruption of the required lighting." This, of course, is simply a requirement that the lighting circuits be separately fused.

The Uniform Building Code requires emergency lighting (from a separate source of electrical energy) in a list of occupancies which fall just short of the scope of the Building Exits Code—in buildings of public assembly with a capacity of more than 300 persons, and any building with a stage. Two or more of the codes, the Basic Building Code of the Building Officials Conference of America and the Southern Standard Building Code, which is promulgated by the Southern Building Code Congress, have adopted the requirements of Section 1203 of the building Exits Code. None of the four "national" building codes, however, refers specifically to the installation requirements of Article 700 of the National Electrical Code.

The minimum requirements prescribed by the Building Exits Code and the National Electrical Code also provide a standard for measuring the adequacy of existing state laws concerning emergency lighting. On this basis, the requirements of only one state, Pennsylvania, exceed the bare minimum.

Pennsylvania regulations, for example, stipulate not only what kinds of buildings, but even what locations within each kind, that

"You should have seen what you did to his fender."

must be provided with emergency lighting. The National Electrical Code requires storage battery systems to be of sufficient capacity to maintain the total load of the emergency lighting circuit for one-half hour; the Pennsylvania regulations demand an hour and a half.

Similarly, the National Electrical Code requires that generator systems be supplied "with suitable means for starting the prime mover on failure of the normal service," but Pennsylvania adds a time factor: All engine and turbine systems shall provide illumination not later than 15 seconds after power failure."

The most significant difference between the National Electrical Code and the Pennsylvania regulations, which are entitled *Construction, Installation and Maintenance of Emergency Lighting Systems*, appears in the crucial question of power supply. The National Electrical Code allows the emergency lighting circuit to be supplied from the same source of electrical energy as the normal lighting circuit if the two circuits are wired so that "an occurrence within the building" will not result in simultaneous interruption of both circuits. This system obviously provides no protection against power failures outside the building, which is where 50 to 90 per cent of all power failures occur.

Recognizing this fact, the Pennsylvania regulations state emphatically that two separate sources of energy must be present in an emergency lighting system:

The emergency source of energy for illumination shall be from a device installed within the building, or shall be secured from an independent generating station entirely separate from that which provides the regular or main service . . . Energy furnished for both services through a single substation, even though the substation may be supplied from separate generating stations, is not acceptable.

In short, Pennsylvania, is the only state whose requirements seem to afford an adequate degree of protection against the hazard of sudden darkness.

At the opposite extreme, there

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You can stop dangerous handling of liquids with Tokheim high vacuum pumps. Their use in maintenance work will help prevent spilling, slopping, over-filling and dripping—all enemies of safety. This means your plant can be kept cleaner—work is speeded—waste halted—accidents prevented.

Tokheims are available with hose or spout outlets and other optional attachments. Pump operates on both forward and back strokes—delivers 20 gallons a minute. Will pump 'most anything that pours. Offered with alternate parts to handle special liquids.

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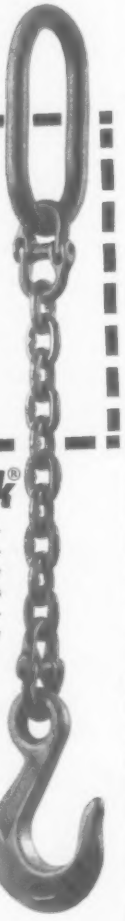

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are a half-dozen states with no emergency lighting requirements at all.

The best way to get requirements as good as those of Pennsylvania is not to duplicate each step of the experience which culminated in the drafting of Pennsylvania's emergency lighting code. Such a procedure could result in 48 different emergency lighting codes in 48 states. This would produce the kind of jungle in which log-rolling, discriminatory regulation, special privilege, and other rank political growths luxuriate.

Therefore, the way to get standards as good as Pennsylvania's is to enact the Building Exits Code, which is already an approved American Standard, and then to work through the machinery set up by the American Standards Association to revise and improve the Code itself.

The way to put the Building Code into effect is to enact legislation

(a) requiring "reasonably safe" exit facilities in all buildings occupied by large numbers of people for any purpose whatever.

(b) providing that conformity with the Building Exits Code shall be prima facie evidence that such buildings are reasonably safe, and

(c) defining the failure to provide reasonably safe exit facilities as a criminal offense.

In some states it may be possible to provide legal sanction for the Building Exits Code without enactment of any new legislation. In Arkansas, for example, the commissioner of labor is empowered to make "reasonable rules for the construction, repair, and maintenance of places of employment, places of public assembly, and public building, as shall render them safe." Adoption of the Building Exits Code as an administrative regulation would clearly fall within the exercise of this power.

The requirement of "reasonably safe" construction is already well established in common law. The difficulty, of course, lies in determining exactly what is meant by "reasonable safety." This is done in common law by defining reasonable safety as "a condition such as ordinary care and diligence will secure."

"Ordinary care," in turn, is defined as the care which a man of ordinary prudence and caution would exert in circumstances similar to those in question and in the like situation. The man of ordinary prudence, of course, is the average man acting according to the normal usages of his business. And the failure to do what the man of ordinary prudence would do under similar circumstances turns out to be negligence.

"Reasonably safe" is a relative measure of duty which can be made absolute by statute. To provide a practical means of discovering when this absolute duty has been complied with, the statute may also provide that compliance with the Building Exits Code will supply presumptive evidence of compliance with the law. Under these circumstances, compliance with the Code will become a practical necessity even though it is not required by law. It will simply be cheaper for the property owner to comply with the Building Exits Code than it will be for him to supply other evidence that he had fulfilled the absolute measure of duty imposed upon him by the law.

Safety Belts

—From page 88

anchoring device will be determined by the tolerance of the human body to the force acquired during the fall and dissipated when the tail line makes up.

The type of safety equipment used may also be determined by the circumstances of the job and the anchoring device which is available.

To obtain data on the reaction of the human body to forces transmitted to it during the operation of standard safety belts, the Department of Physiology of Ohio State University was commissioned to investigate the subject. Results of the study are contained in the final report on the *ASSE Research Project on Safety Belts, Harnesses and Accessories.*

The experiments indicate that it is possible to have sufficient

deceleration applied by a waist belt to cause serious, damage to the heart and liver which may prove fatal.

Tests on the upper thorax showed that the force required to produce a shoulder fracture is similar to that required to produce a heart injury if applied to a waist belt.

Selecting the Belt

If the only purpose of the belt is to stop a fall, a waist belt with a single D-ring is usually satisfactory. The belt should be equipped with a body pad to distribute the possible impact over as wide an area as possible. Shoulder straps to take the weight of the belt off the hips are available. These may be desirable if tools are secured to the belt.

If the belt is to furnish support while the man is working, it should provide ample support. If he is going to lean back in the belt, two D-rings should be provided to permit the use of two lines to give the belt more stability. If the belt must support most or all the wearer's weight, a saddle or bosun's chair type of belt can be used. It may or may not have a wooden seat. This type of belt is often used for overside work on ships.

If a belt is to be used to hoist a man out of a tank, when he might be unconscious, a belt of the harness or parachute type should be used to hold him in a vertical position.

Materials

Webbing has definite advantages over leather for any belt which may be called upon to take impact loads and is now used for most of the general purpose industrial safety belts. Webbing has more than three times as much resistance to impact loading as leather of the same size because it has both more strength and more stretch.

Furthermore, the tongue buckle used on most leather belts puts the entire strain at the one or two points where the tongue penetrates the strap. Under severe stress the tongue may cut or pull through these straps at much less than the full strength of the strap.

Webbing requires no unusual care and treatment to retain its strength, is less easily cut than leather and more resistant to chemicals, moisture, dryness, and to heat short of scorching. It should not however, be subjected to moisture for long periods, which may cause mildew. If exposed to corrosive chemicals it should be specially treated.

Types of webbing. Most common are the square or basket weave and the herringbone. For the same size and thickness, the herringbone weave has approximately twice the strength of the basket weave. Better yarn is used in the newer weave but most of the difference is due to the structure of the webbing.

Under stress, herringbone weave webbing will elongate while basket weave webbing will not. However, the amount of elongation under most loads will not affect the fit of the belt seriously. Herringbone weave webbing, being softer and more pliable than the harder basket weave, may give the deceptive impression that it has less strength.

In judging the protection offered by a belt, these factors should be considered:

—Sufficient strength to stop the wearer after a maximum free fall.

—Short enough stopping distance to prevent the wearer from striking some dangerous obstruction while falling.

—A shock absorber to limit impact loading and prevent injury to the wearer or failure of belt, life line or anchorage.

—Unknown factors—weight of wearer, distance of fall, physical fitness, distance to any damaging obstruction, variations in strength or elasticity of materials, and deterioration of materials due to wear or other causes.

A safety belt is useless unless worn—and worn correctly. It should be securely buckled and worn tight enough to prevent any possibility of the man slipping out of it.

Life Lines

For most life lines, ¾ in. manila or ½ in. nylon rope is recommended. Nylon is more resistant to wear, abrasion and some chemicals than manila.

Knots reduce the strength of

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Method 5100—Federal Specification CCC-T-191-B—Underwriters' Grade.

	Warp	Fill
Wheeler Weave—	215	95
Basket Weave—	133	62

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These tests prove that Wheeler Weave asbestos gloves are cheaper in the long run. And these gloves are made with exclusive green flame-proof linings, superior seams and finishing, too! *One pair of Wheeler Weave gloves or mittens will outlast ordinary basket weave 2 to 1.* Try 'em on your next order...and start saving money!

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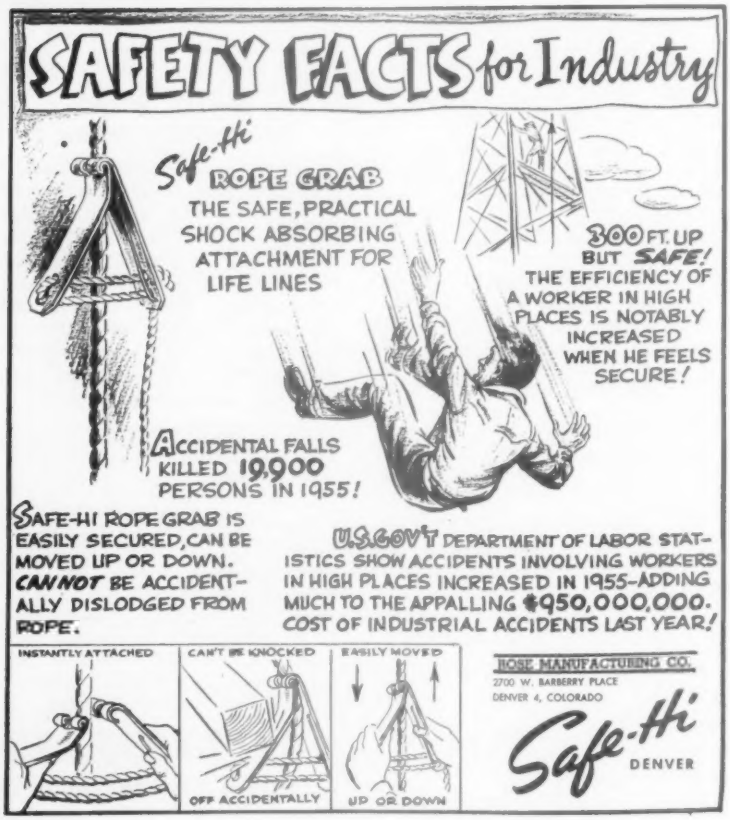
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ropes. In some cases a knot will reduce the tensile strength of a rope to less than half its rated breaking strength. Moisture increases the strength of a rope in a knot or around a sharp bend and dryness reduces it at such points.

Life lines should be tied with as little slack as possible to stop the man with the minimum free fall. When working from a scaffold where the man must have enough slack to do his work there would be a fall of a foot or more before he reached the end of the line. In such cases a fairly long line should be secured overhead with a minimum of slack. The line is secured independently of the scaffold.

Inspection

Belts and life lines should be inspected by the wearer before each use. Broken stitching, cracked or deformed hardware, and broken threads in the webbing are things to look for. A few broken threads will not seriously weaken the belt if it is determined by bending or twisting that the broken threads are not due to general deterioration of the fiber.

Neither belt nor life line should be subjected to tests while in service. Any service test severe enough to prove whether or not the belt could take the maximum impact loading which might possibly be required of it might damage the belt sufficiently to make it unreliable for further use.

If a test is desired, sample or worn or doubtful belts may be tested to destruction and the information used to judge belts in service.

Most common errors in wearing safety belts are:

—Belt not snug enough around waist.
—Life line too light.
—Life line insecurely fastened to belt.
—Life line wrapped around waist instead of secured to fixed object.
—Life line made fast to scaffold on which men are working instead of being secured independently.
—Too much slack in life line.

A member of the office staff sauntered in at 9:30 one morning.

"You should have been here at 9:00," the boss said sternly.

"Why?" said the employee. What happened?"

Drive on Falls

—*From page 8*

experience from falls covering 1955 and 1956 to the nearest convenient date for supplying the data at the start of the campaign, and similar information for each six months of the campaign year. A separate report on forms provided by the Council must be made for each store, plant, mine, or other type of establishment at different locations employing 25 or more workers.

A special feature of the campaign will be a Certificate of Commendation award to supervisors achieving the campaign goal of a reduction of 50 per cent in the frequency of chargeable injuries in comparison with the base period of 1955 and 1956 to date, or a record of no chargeable injuries for the campaign period. This award is made to aid in creating the interest of supervisors in the campaign, and to recognize their efforts in preventing falls. Each participant will determine eligible supervisors, regardless of whether the plant, mine, or organization as a whole meets the campaign goal.

A Certificate of Achievement will be awarded to each participant achieving the campaign goal, or having no chargeable injuries during the campaign year.

Both awards will be made only to participants meeting the following additional requirements: (1) Conducting a minimum of six activities aimed at the prevention of falls, and (2) Having no fatal injuries from a fall during the campaign period.

To keep participants informed on the general progress of the campaign, the National Safety Council will compile the required reports from participants at the close of the first six months and distribute a bulletin providing information for use at safety meetings, in company publications, and for other purposes. Likewise, a similar bulletin will be issued at the end of the campaign giving vital information about the results, and announcing the winners of Certificate of Achievement Awards.

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Aluminized asbestos reflects up to 95% radiant heat, and won't burn. Steel-Grip has tailored this material into well-fitting, properly proportioned safety garments that protect workers while allowing full freedom of movement. Unexcelled for hot-metal handling and processing. Every yard of cloth has been carefully selected for uniform quality. Each garment bears the Steel-Grip label, your guarantee of wear and satisfaction. Available as coats, pants, aprons, sleeves, leggings, spats, gloves, mitts and curtains. Many uses in industry. Many advantages to users. Write for test swatches or trial garments.

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MSA Safety Record Wins Two Awards

GEORGE H. DEIKE, SR., chairman of the board (left), and E. G. Sanner, vice-president, display NSC award of Honor won by Mine Safety Appliances Company.

A SAFETY RECORD of nearly two years — 5,500,000 man-hours — without a lost-time accident has earned the main plant of Mine Safety Appliances Company an Award of Honor from the National Safety Council.

Receipt of the award was acknowledged by the company during a special "Safety Day" observance on Friday, June 22. Board Chairman George H. Deike, Sr., and Vice-President E. G. Sanner spoke to employees, thanking them for their cooperation with the safety program and urging continued safe practices.

Following the ceremonies, all plant employees were presented mechanical pencils marked $5,000,000—no lost-time accidents—MSA Pittsburgh 1956." A special issue of the company magazine was published for the occasion.

Earlier the company had received a companion award from the Western Pennsylvania Safety Council. E. J. Hanley, president of the Council, presented a Certificate of Accomplishment to Works Manager K. L. Steele before the start of the Council's annual Green Pennant exhibition baseball game between the Pittsburgh Pirates and the Detroit Tigers on June 14. More than 100 MSA employees attended the game as guests of the company.

Think no evil, see no evil, hear no evil—and you'll never write best-selling novel—Dan Bennett in QUOTE.

Tradition at Norton

—*From page 86*

almost completely eliminated. This has been an important factor in the reduction of eye accidents and has enabled the Sanitation Department to do a much better job.

An Indoctrination Program for new employees has begun recently. Monthly meetings are attended by the vice-president of the Division and the four managers in charge of the factory, sales, engineering, and production. The superintendent, safety engineer and chairman of the safety committee also attend.

These meetings serve two important purposes. First, new employees have an opportunity to meet the members of the management team, and the organization, functions and responsibilities of the various sections are explained. The safety program is outlined and each employee's part in maintaining its success is stressed.

Next, efforts are made to show the new employees how important they are to the success of over-all operations with particular emphasis placed on the safety program. An informal get-together over a cup of coffee concludes the meeting.

Maintenance of all chains, slings, ropes and lifting bars is the responsibility of one man. It is his full time job to inspect, repair and replace this equipment. He also makes periodic inspections of the chains and cables of all hoists and cranes. Heavy or difficult lifts are made only under his supervision.

We of Norton have found that good safety records are the result of excellent teamwork throughout the entire organization. Management must provide the proper facilities and equipment and establish itself as being 100 per cent in back of a safety program. Supervisors must be alert to problems and potential hazards. They must constantly point out to the employees the advantages of thinking and acting safety at all times. This kind of teamwork can only result in a better and safer place in which to work.

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Features two 8 oz. shells with face-to-face napping for extreme insulation, coated with oil, acid, caustic and solvent resistant neoprene. Inner lining double napped and bar tacked at finger tips. Non-ravel lock stitch binding on gauntlet. *PIONEER will help you select the right glove for your job from the complete PIONEER line.*

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- ☐ 1956-57 PIONEER Industrial Glove Catalog.
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Color

—*From page 104*

time, care should be taken not to overdo strong colors, and on large surfaces these are generally grayed or lightened.

A thorough application of these principles is not always easy. Tank colors, for instance, are often fairly inflexible, particularly in petroleum refineries where a minimum heat absorption is mandatory. When there is a choice, however, the overall color scheme of the plant should be considered, together with the glare or dark created and the effect of the tank color as a background for machinery or instruments at its base. In this connection, keep in mind that strong colors are unpleasant on objects as large as tanks. Harsh or drab shades such as orange, dark brown and black—should be avoided.

TABLE II. Apparatus and Equipment Identification, with suggested applications

RED

Fire exit signs
Fire alarm boxes
Fire blanket boxes
Fire buckets or pails
Fire extinguishers
Fire hose or extinguisher locations
Fire hydrants (Industrial)
Fire pumps
Post indicator valves for sprinkler system
Safety cans or other portable containers of flammable liquids
Red lights at barricades, or temporary obstructions
Danger signs
Emergency stop bars on hazardous machines
Emergency stop buttons for electrical switches

ORANGE

Safety starting buttons
Inside of movable guards
Inside of transmission guards for gears, pulleys, shafts, chains, etc.
Exposed parts (edges only) of shafts, pulleys, gears, rollers, cutting devices, power jaws, etc.

YELLOW*

Corner markers for storage piles
Coverings or guards for guy wires
Exposed and unguarded edges of platforms, pits, and walls

*Painting, or plastic bands and sheets, with alternate black and yellow sheets should be used for hazard markings on flat surfaces and pipes.

Suspended fixtures which extend into normal operating areas
Handrails, guardrails, or top and bottom treads of stairways
Industrial locomotives (or areas thereon)
Lower pulley blocks and cranes
Markings for projections, doorways, traveling conveyors, low beams and pipes
Material Handling Equipment (or areas thereon), such as industrial tractors, trucks, trailers, fork-lifts, conveyors, gantry cranes, etc.
Pillars, posts, or columns which might be struck
Stripe along sides of freight-carloading plates or runways
Caution signs

GREEN

Safety bulletin boards
Gas masks
First aid kits
First aid dispensary
Stretchers
Safety deluge showers

BLUE

Painted barriers or flags at starting point or power source of:
- Elevators
- Ovens
- Tanks
- Kilns
- Boilers
- Electrical controls
- Dryers
- Valves
- Vaults
- Scaffolding
- Ladders

PURPLE

Radioactive areas, handling or processing equipment

BLACK AND WHITE

Traffic markings (solid or alternate lines):
- Dead ends of aisles or passageways
- Location and width of aisleways
- Stairways (risers, direction and border limit signs)
- Directional signs

Housekeeping markings:
- Location of refuse cans
- White corners for rooms or passageways
- Drinking fountains and food-dispensing locations
- Clear floor areas around first aid, fire fighting and other emergency equipment

TABLE III. Preferred Reflectivity in Paints

Room Element	Reflectivity (Per Cent)
Ceiling	80–85
Window Walls	75–80
Upper Walls	80–85
Walls	50–60
Walls (when entire room meets recommendation)	60–70
Trim	30–40
Floor	15–30

TABLE IV. Color Preferences (In Order of Descending Preference)

Men	Women
Blue	Red
Red	Blue
Blue-Green	Blue-Green
Green	Green
Red-Orange	Red-Orange
Violet	Violet
Orange	Orange
Yellow	Yellow

HIGHLY REFLECTIVE light blue-green for tanks in the warm and dark filtrate receiver area improves efficiency. Lines are color coded and banded to designate general process step.

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Distinguished Service

—From page 40

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Blaw-Knox Co., Two Awards: Lewis Machinery Div., Power Piping & Sprinkler Div., Pittsburgh, Pa.

Budd Co., Red Lion Plant, Buselton, Pa.

Canada Cement Co., Ltd., Two Awards: Havelock, New Brunswick, Canada, Plant 2, Belleville, Ontario, Canada.

Celanese Corp. of America, Chemical Fibers, Zacapu, Mexico.

Chicago Burlington & Quincy Railroad Co., Communications Dept.

Chrysler Corp., Eight Awards: Automotive Body Division, Outer Drive Plant, A B D Exeter Plant, Amplex Division, Lynch Road Axle Plant, Outer Drive Plant, Minfield Foundry, Van Dyke, Sterling Township, Mich.

The Cincinnati Gas & Electric Co., The Union Light, Heat and Power Co.

Container Corp. of America, Four Awards: Los Angeles, Baltimore, Cleveland Carton Div., O. B. Andrews Co., Chattanooga, Tenn.

Crowell Carton Co., Marshall, Mich.

Dewwy Portland Cement Co., Davenport, Ia.

Diamond Portland Cement Co., Middle Branch, Ohio.

E. I. du Pont de Nemours & Co., Three Awards: Dana Plant, Wilmington (Del.) Plant, Indiana Works.

Euclid Lamp Plant, Cleveland.

William W. Fitzhugh, Inc., New York.

Food Machinery & Chemical Corp., San Jose, Calif.

Ford Motor Co., Twenty-Seven Awards: General Offices Mfg. Services Div., Denver (Col.) Parts Depot, Atlanta (Ga.) Assembly Plant, Aircraft Engine Div., Chicago, Parts Depot, New Orleans, Sales Offices, Lincoln & Mercury Div., Mich., Ford Tractor, Birmingham, Mich., Engineering Staff, Dearborn & Phoenix, Dearborn Engine Plant, Mich., Tool & Die Plant, Mich., Open Hearth & Electric Furnace, Dearborn, Mich., Frame & Coldheading Plant, Manufacturing Services Div., Metuchen Plant, Trim Plant, Highland Park, Mich., Livonia Plant, Central Parts Depot, Livonia, Mich., Manchester (Mich.) Plant, Northville (Mich.) Plant, Waterford (Mich.) Plant, Green Island (New York) Plant, Fargo (N. D.) Parts Depot, Cleveland (Ohio) Plant, Cleveland Staff General Offices, Cleveland, Dallas (Tex.) Plant, Houston (Tex.) Parts Depot, Norfolk (Va.) Assembly Plant.

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Honolulu Rapid Transit Co.

Ideal Cement Co., Ada., Okla.

Kansas City Public Service Co.

Lawrence Portland Cement, Thomaston, Me.

Lehigh Portland Cement Co., Two Awards: Alsen, N. Y., Buffalo, N. Y.

Linde Air Products Co., Tonawanda Laboratories.

Lord Batlimore Press Inc., Baltimore.

Madison Bus Co.

Marquette Cement Co., Two Awards: Brandon, Miss., Cape Gerardean, Mo.

Marquette Cement Manufacturing Co., Cowan, Tenn.

Medusa Portland Cement Co., Manitowac, Wis.

Milwaukee Electric Railway & Transport Co.

Monarch Cement Co., Humbolt, Kan.

National Portland Cement Co., Bethlehem, Pa.

North American Aviation, Inc., Three Awards: Atomics International Div., Middle Test Facility, Patrick Air Force Base, Fla.

Northern States Power Co.

Olympic Cement Association, Bellingham, Wash.

Owens-Illinois Glass Co., Mfg. of Molds, 97 Alton, Ill.

Peerless Cement Co., Port Huron, Mich.

Petoskey Cement Co., Petoskey, Mich.

Pittsburgh Plate Glass Co., Four Awards: Works 9, Crystal City, Mo., Barberton (Ohio) Lime Mine, Glass Div., Creighton, Pa., Columbia Chemical Div., Natrium, W. Va.

RCA Moorestown Engineering, Moorestown (N. J.) Plant.

The Rubberoid Co., New York.

Savannah Electric Co.

South Carolina Power Co.

Southern Indiana Gas & Electric Co., Evansville, Ind.

Stauffer Chemical Co., Dominiquez Plant, Los Angeles.

Superior Cement Co.

Sylvania Electric Products Inc., Photoflash Plant, Montoursville, Pa.

Tampa Electric Co., Power & Light, Tampa, Fla.
Transcontinental Gas Pipe Line Corp., Texas to New York.
U C C Corp., Linde Air Products Co., Two Awards: Newark (N. J.) Factory, Tonawanda Factory, New York.
Corps of Enginers, Three Awards: United States Army, Washington, D. C., Construction, Washington, D. C.
United States Rubber Co., Four Awards: Washington (Ind.) Plant, Chicopee Falls Plant, Mass., Passaic (N. J.) Plant, Burlington (N. C.) Plant.
U. S. Steel Corp., Oliver Iron Mining Div., Monroe 12 RR Operations, Chisholm.
U S S Co., American Steel & Wire Co., Electrical Cable Works, Mass.
Universal Atlas Cement Co., Four Awards: Buffington, Ind., Duluth, Minn., Hannibal, Mo., Hudson, N. Y.
Virginia Transit Co.
Westinghouse Electric Corp., Two Awards: Richmond (Ky.) Lamp Div., Small Motor Div., Lima, O.
West Point Manufacturing Co., Two Awards: West Point, Ga., Service Div.
Wheeling Electric Co., General Location, Wheeling, W. Va.
Whittin Machine Works, Whittinsville, Mass.
Winnipeg Electric Co.
Wisconsin Public Service Co.

CERTIFICATE OF COMMENDATION

Acme Paper Box Co., Chicago.
Acme Folding Box Co., St. Louis, Mo.
Allied Chemical & Dye Corp., Nitrogen Div., Orange, Tex.
Alpha Portland Cement Co., Birmingham, Ala.
American Brake Shoe Co., Five Awards: American Brakeblok Division, Lindsay, American Manganese Steel Division, Hq., Chicago, Brake Shoe & Castings Div., Melrose Park, Brake Shoe & Castings Div., Hq., New York, Sintermet Division, Cleveland.
American Can Co., Two Awards, Maywood Technical Service, 72A, Maywood, Ill., Harrisburgh, Pa.
The Atlantic Refining Co., Product Control, Philadelphia.
Barium Products Ltd., San Francisco.
Bemis Bros. Bag Co., Milan Station, Norfolk, Va.
F. N. Burt Co., Inc., Folding Cartons, Buffalo, N. Y.
Canada Cement Co., Ltd., Steep Rock, Manitoba, Canada.
Colorado Springs Transit Co., Colorado.
Container Corp. of America, Three Awards: Santa Clara, Calif., Brandywine Park, Wilmington, Del., Folding Division, Medford, Mass.
Cooperative Transit Co.
Crescent Box and Printing Co., Tullahoma, Tenn.
Davison Chemical Co., Two Awards: Division of W. R. Grace & Co., Gretna, La., Cincinnati, Ohio.
E. I. du Pont de Nemours & Co., Plant Research Laboratory.
Eddy Paper Corp., Gereke Allen Carton Co., St. Louis, Mo.
Ford Motor Co., Six Awards: Boston Depot, Omaha (Neb.) Parts Depot, Cincinnati Parts Depot, Salt Lake City (Utah) Parts Depot, Richmond, Va., Seattle (Wash.) Parts Depot.
Robert Gair Co., Inc., Gair Cartons Egg Cartons Div.
A. L. Garber Co., Ashland, Ohio.
General Trinity Portland Cement Co., Ft. Worth, Tex.
Hamilton City Lines, Inc.
Hawkins Container Co., Munroe Falls Paper Co., Summit, Ohio.
Ideal Cement Co., Mobile (Ala.) Div., Ft. Collins (Col.) Div.
Interstate Power Co.
Kardon Box Co., Philadelphia.
Kenosha Motor Coach Co.
Koppers Co., Inc., Chemaco Plant Berkely Heights, N. J.
Lehigh Portland Cement Co., Metaline Falls, Mich.
Mansfield Tire & Rubber Co., Pennsylvania Tire Co.
Marquette Cement Co., Des Moines, Ia.
Medusa Portland Cement Co., York, White.
Monsanto Chemical Co., Lion Oil Co., Pipeline Dept.
Newth Morris Box Corp., Jacksonville, Fla.
North American Cement Co., Hagerstown, Md.
Northrop Aircraft, Inc., Missile Test Facility, Coco, Calif.
Oshkosh City Lines.
Penn Dixie Cement Co., 4 Awards: Clinchfield, Ga., Des Moines, Ia., Nazareth, Pa., Kingsport, Tenn.
Pillsbury Mills Inc., Downingtown, Pa.
Pittsburgh Plate Glass Co., Four Awards: Torrance, Calif., Atlanta Plant East Point, Ga., Portland, Ore., Springdale, Pa.
Procter & Gamble Co., Three Awards: Buckeye Cotton Oil Co., Selma, Ala., Macon, Ga., Memphis, Tenn.
Republic Steel Corp., Culvert Division Plants 1 & 2, Canton, Ohio.

—To page 160

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It locks automatically—instantly—holds.

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Shell Oil Co., St. Gabriel Field St., Gabriel, La.
Shuttleworth Carton Co., New York.
City Utilities of Springfield, Missouri, Transportation Dept.
Superior Cement Co., Seattle, Wash.
Tennessee Eastman Co., Power and Services Division, Tennessee.
Toledo Paper Box Co., Toledo, Ohio.
U C C Corp., Linde Air Products Co., Los Angeles Factory, Calif.
United Motor Coach.
United States Rubber Co., Two Awards: Gastonia (N. C.) Textile Plant, Scottsville (Va.) Plant.
Universal Atlas Cement Co., Two Awards: Leeds, Ala., Independence, Kan.
Victor Chemical Works, Morrisville, Pa.
Virginia Carolina Chemical Corp., Seven Awards: Wylaur, Ala., Jacksonville, Fla., Nichols (Fla.) Concrete Plant, Wadesboro, N. Car., Charleston, S. C., Lynchburg, Va., Richmond (Va.) Bag Plant.
Warneke Paper Box Co., Denver, Col.
Wyandotte Chemicals Corp., Pilot Plant, Wyandotte, Mich.

Calendar Contest Winners For July 1956

First prize of $100 in the National Safety Council's Safety Sayings Contest goes this month to Rev. Jerome Dehnert, of Chicago. The theme in this contest was it's safer to obey signs. Father Dehnert's line was adjudged the best of all those submitted. It was: *Signs are to LIVE by, not PASS by!*

Second prize of $50 went to W. D. Burke, of Biwabik, Minn., for this line:

'Tis my business what you do.
My life's endangered too!

Third prize of $25 was awarded to Eber H. Brown, of Saginaw, Mich., for the following line:

Is this your way of going all out for safety?

Thirty $5.00 prizes went to:

TEC Sgt. Howard F. Dooley, 2602D Air Reserve Center, Syracuse 8, N. Y.

Ann Blanton, State Department of Labor & Industry, Richmond, Va.

Richard C. Snyder, Acme Corp., Chicago.

C. K. Scoles, Southern Colorado Power Co., Pueblo, Colo.

Joe Slosarcik, Socony Mobil Oil Co., Inc., E. Chicago, Ind.

Rebecca Hamby, Moore Cottonmill, Lenoir, N. C.

Byron Guyer, Teletype Corp., Chicago.

Kathryn L. Kreiser, Railway Express Agency, W. Palm Beach, Fla.

James Mannion, Stauffer Chemical Co., Chauncey, N. Y.

Anne Prieve, A. B. Dick Co., Chicago.

Robert Manning, Southern California Gas Co., Los Angeles.

Robert E. Lee, Republic Steel Co., Cleveland, Ohio.

Mrs. Rita Rumer, Pullman Co., St. Louis, Mo.

Charles S. Palmer, Pittsburgh Post Office, Pittsburgh, Pa.

Mrs. Claude A. Farlow, Shippers Dispatch, Inc., South Bend, Ind.

John Halbe, E. I. du Pont de Nemours & Co., Inc., Gibbstown, N. J.

Charles R. Reagan, E. I. du Pont de Nemours & Co., Inc., Indiana Ordnance Works, Jeffersonville, Ind.

Robert Kershaw, Consolidated Edison Co., New York.

Robert L. Hamsky, DeKalb Agricultural Assn., Mt. Carmel, Ill.

Mrs. Ned Fish, University of Missouri, Columbia, Mo.

Franklin A. Landers, National Lead Co., Baroid Div., Houston, Tex.

Max Koffler, Consolidated Edison Co., New York.

Lawrence A. Lundgren, Texas Co., East Chicago, Ind.

Elmer T. Henry, Union Carbide Nuclear Co., Oak Ridge, Tenn.

Mrs. Barbara B. Constant, Hughes Aircraft Co., Culver City, Calif.

Roy Hopkins, Lake Superior District Power Co., Ironwood, Mich.

Miss Ann Wren, A. B. Dick Co., Chicago.

Arnold W. Schmidt, Nordberg Manufacturing Co., Busch Sulzer Div., St. Louis, Mo.

Mrs. A. R. Poole, Convallis, Ore., (Individual Member)

Mrs. Eleanora M. Kizer, United States Rubber Co., Mishawaka, Ind.

Industrial Health

—*From page 65*

mand for this type of service is very firm and very widespread.

One of the major sources of dissatisfaction was the present benefit plans as the variation in the items of service which fall within the plans in different institutions in the same community. It is difficult for a labor leader, for instance, to explain to his membership why anesthesia is covered under the plan in one hospital and is not covered in another, when the two hospitals are located in the same community and maybe just across the street.

The unions do not understand why different hospitals in the same community make different arrangements for identical physicians services rendered to patients in the hospitals and they don't particularly want to find out. They simply want to know that when the prepayment plan calls for a service benefit that it will cover all of the services rendered in the hospital and all of the medical care rendered in the clinic.

In the mind of the labor union leader and member, this is no more complicated than buying a tankfull of gasoline or an airline ticket on a credit card and should involve no more complications. The unions maintain, and they are probably right, that the practice of selling thousands of varieties of benefit patterns in a single community is inefficient and should be changed.

They also want an expansion in prepayment coverage to the family and dependents of the employee's household and they are also talking about coverage during periods of unemployment, regardless of the reason for the absence from work. This also includes coverage during retirement either for disability or for age.

Since many unions have members in more than one community and in the area of more than one prepayment plan, they want and eventually will demand uniform benefits for the entire employee group regardless of where the employee may live and work. It is quite obviously impossible for either the union or the employer to provide a lower level of benefits at one installation than at another for employees in the same union and covered by the same plan.

While the unions can be expected to encourage government action to supplement the minimums of health protection obtained in collective bargaining and to fill in the gaps in the prepayment structure it is not likely that the unions will seek government control of the plans which work well under voluntary control.

Accident Repeaters

"A Methodological Note on Time Intervals Between Consecutive Accidents" by Alexander Mintz, *Journal of Applied Psychology*, 40: 189-191, (June 1956).

THE STUDY of the interval between consecutive accidents of individuals is a method for determining whether accidents have an influence on future proneness to accidents. It is generally assumed that there is no such influence, but some investigators have felt that their data showed an increased accident proneness following an accident, and that personnel who have accidents should be immediately subjected to re-adjustment procedures.

In this study the accidents of a group of 67 taxi drivers, who had two or more accidents in a single year were studied to see how the time interval between pairs of accidents compared to a theoretical time distribution, calculated from probability theory.

Contrary to what one might expect, the theoretical distribution shows an unequal distribution of short and long time intervals between the various events. In this instance, the time intervals between the accidents were classified into four week periods.

It was noticeable that a very large proportion of the second accidents occurred in the first of the fourth week, and in 56 of 67 cases the second accident occurred before the thirteenth week. The observed and the theoretically calculated intervals are very similar, and in no instance do the differences between them approach statistical significance. This does not indicate any influence of the first accident on the second one.

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State Labor Department

—From page 13

nia, the law should be concerned with prevention of injuries and not only with mere enforcement. Sanitation, of course, is a proper, necessary concern of the law, too.

With a good law as a basis, comes next the development of up-to-date safety codes. Some of the present state codes have not been revised in many years.

It ought to be obvious that rapidly changing methods and equipment in manufacturing and industrial processes call for corresponding review of safety codes and whatever revision would be appropriate. The codes ought to contain built-in, do-it-yourself review clauses, that is to say, they ought to require of themselves a review at least every five years.

With a law and codes to work with, you need then — staff and program. The kind of staff people we find in some of our states reflects quite accurately what is wrong with their safety programs and their entire attitude toward the problem of occupational safety. Some of these so-called factory inspectors just don't know the difference between a tool room and a pool room — or, I should say, their knowledge is perhaps more about pool rooms than tool rooms.

Labor departments in some states are orphans in the governor's cabinet. The top job—labor director or whatever the title may be — is filled for purely political reasons—to hand out a plum to a political supporter, with no concern about qualifications for the position. Then this individual pays off other political debts by operating through party committeemen who pick ward-heelers to be factory inspectors. Small wonder there develops a standard operating procedure in safety law enforcement which includes graft and bribery. Yes, we have heard of cases where employers, with only a dollars-and-cents concern with safety, have figured they saved money by paying a certain sum to an inspector to forget about unsafe equipment he may have seen rather than report the equipment.

I don't wish at all to imply that this is general. It is not. But we of labor don't like it. Not only for its intrinsic dishonesty, but because of the wrong attitude toward safety which it reveals.

There are many companies with wonderful attitudes in job safety, with sound progressive safety programs. But on the whole, the strongest interest in safety comes from the labor side. Most of the support for the good existing state programs has come from labor, and this interest is increasing—definitely so.

To elaborate a bit on labor's interest in job safety, I would like to tell you we negotiate safety into our contracts with employers. My union, the International Association of Machinists, for years has had a model agreement which serves as a basic standard for negotiations with employers. And that model agreement contains a Safety and Sanitary Conditions clause. We have negotiated about a thousand contracts containing safety clause provisions. These contracts cover about 1400 firms.

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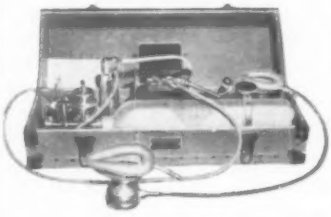

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Of course, labor's interest in safety would be narrow if it were limited by what we could come to terms about with employers. No, our interest goes all the way, because safety is, as I have said before, everybody's business and therefore we want everybody interested in it.

We want non-union employers and employees interested in occupational safety. Could be that the promotion of that interest might result in the discarding and junking of unsafe machinery and equipment and the purchase of new modern safe products.

The reason we emphatically want good state safety programs is the enormous contribution they could make to the cause of accident prevention.

One of the most important things that labor is going to insist on in the future is that the administration of safety programs be placed in the hands of people who know what the problems of safety are and what safety programs ought to be, instead of being in the hands of political hacks.

How would staffing like that be done? Let's take another look at California. I'd like to refer to Mr. Blackman again. He explains that practically all of the state's Division of Industrial Safety are civil service personnel. (It's a big staff, numbering 177 a couple of years ago.)

In true California system "there are job specifications for each job. These specifications establish minimum standards of experience and education for each position; and the applicant must meet these specifications before he is permitted to take the written examination designed to test his knowledge of the subject. If he passes the written test, he is interviewed at an oral examination, during which time his personal qualifications are considered and his education and experience evaluated by an oral board . . . If the individual passes, he is then certified to the agency eligible list and the agency is allowed to choose one of the first three candidates for each available position."

Occupational safety is an increasingly important problem in this age of science. Safety programs, become, accordingly, increasingly scientific. You can't get such programs devised or administered by ordinary politicians. You need trained people and you get them the way they do in California, in the scientific way of the civil service procedure.

The prevention phase of state safety programs (as distinguished from the enforcement phase) requires, in my opinion, more and more of promotion and selling of safety, of safety education. More states should be doing what Florida is doing in the matter of education. It is the only state of which I've seen literature on safety.

However, I don't intend to try to develop the specifics for state safety programs. I don't think I qualify as an expert in that category. But I feel it is my duty as a labor representative to complain of the poor, overall quality of our state programs and to serve notice in this forum of labor's growing insistence on the establishing of good agencies and good programs.

As a labor representative, I have wished to express concern with job safety in terms of human beings, the concern we have in the people involved, the people to whom accidents happen and all those who suffer loss of income, pain, heartache, worry and bereavement because of preventable accidents on the job.

But for a final word, I'd like to join that group to which we all belong—I'd like to say, as a taxpayer, that I protest against waste and misuse of my money in the operation of inadequate, inefficient state safety agencies.

"I told you not to go in right after eating."

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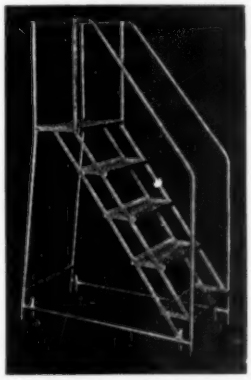

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Radiation Protection

—From page 25

sion products produced in one such reactor are equivalent in their toxicity to many tons of the most lethal poisons.

Still, it is considered quite feasible to work around them and operate them safely. This is accomplished at considerable cost in terms of shielding against direct radiation, multiple lines of containment of all radioactive materials, and elaborate safeguards against the possibility of disruptive accidents. The licensing procedure of the AEC includes a thorough review of these safety measures before a license is issued, and inspection of operations afterward.

The reactor itself, and fuel elements removed from it after being irradiated, must be surrounded by shielding materials many feet in thickness. All piping and equipment which have been exposed to the intense neutron flux of the core or fluids which have passed through the core require several feet of shielding.

In addition to shielding personnel against the radiation from materials in their normal places, it is necessary to maintain control over all radioactive materials which might be released into the environment. Thus, solid fuel elements are normally canned in corrosion-resistant materials to keep the fission products in them from escaping into the cooling fluid. The coolant plumbing, in turn, must be exceptionally leaktight. Secondary containment must be provided to prevent escape of radioactivity in case the plumbing does leak.

Care must also be taken that chemically active radioactive materials cannot come together and produce fires or explosions as a result of ordinary leaks or parts failures. Disposal of contaminated waste materials must be carefully planned and controlled.

Such waste might include demineralizer resins and regenerating solutions, surge tank vapors, and ventilation air contaminated by minor accidents. Gaseous and airborne wastes must be controlled by filtration and dilution with air; mildly radioactive liquids by holding them for a time while they decay into nonradioactive forms, and by filtration and dilution with uncontaminated water. More dangerous liquids must be concentrated and put into safe storage. Some miscellaneous contaminated materials must be buried, others burned in specially designed incinerators.

The reactor itself must be designed so that it will not by loss of coolant, for example, melt, vaporize, or otherwise destroy itself and thereby release radioactivity into the environment.

The second general problem, which is not found in the usual power plant, at least to the same extent, is the control of the rate of energy release. The rate of release is determined by a number of factors first of which is the amount of fissionable fuel. A certain minimum amount is required to maintain the chain reaction. In order not to have to refuel the reactor constantly, it is necessary to add to this amount. In a power reactor, this excess fuel may represent millions of kilowatt hours of energy.

This energy, of course, must not be released all at one time. The rate of release is sensitive to many variables in the reactor, such as the kinds and amounts of other materials in the core and their geometrical arrangement. The sizes, shapes and spacings of these materials must be so arranged that they cannot readily be changed by accident in such a way as to permit a rapid increase in the rate of energy production Even a change in the temperature of materials in a reactor may cause the power level to change.

In the event of a large-scale disaster, it would be hoped that even in the worst case only a small fraction of the contained radioactivity would be released into the reactor building and that this could be contained there. If the building were not perfectly gas-tight, some fission products might leak out. The harmful effects of such a leak can be reduced by controlling a sufficient land area to assure some degree of atmospheric dilution before the contaminated air reaches the public.

Part of these precautions of

containment and distance which we now believe must be provided are simply a protection against our ignorance of the behavior to be expected of new reactor types. Although each new type of reactor presents its own peculiar safety problems, there is no reason to suppose that the problems will not be solved as they arise.

It is well established from the experience of the past few years that nuclear reactors, processing plants, and mills associated with the atomic energy program can be operated safely and that safe methods of handling radioactive materials have been developed.

Obviously, there are new sources of possible accidents and new kinds of injuries, seemingly exotic and mysterious, but our experience so far has demonstrated that these can be recognized in advance and avoided. As more experience is gained and more nuclear power plants built, safety practices which now seem so unusual will become accepted in the same way as are more familiar industrial safety practices.

I think it is safe to say that with proper hazard evaluation, with adequate preplanning, with appropriate engineering and careful operating procedures there is no reason why a nuclear power plant should not be a safe place to work and no reason why the environment of such a plant should ever become significantly contaminated. As a matter of fact, it is quite likely that it will be cleaner, from a health standpoint, than the average industrial plant.

It is clear to us that in almost every case where radiation is a hazard, it is no more of a hazard than the possibility of electrocution, falls, fires, or the other common causes of injury with which we are all too familiar.

Now let me turn for a moment to a different side of the picture. Only a comparatively few companies will ever have to meet the problems associated with a power reactor. On the other hand, many companies are or will be using radioisotopes. Some figures might help to put this in perspective. Because of the nature of the business, there are relatively few power companies. Compared with this is the total of industrial companies, hospitals and laboratories in this country. Many of them are potential users of radioisotopes.

In the past five years the number of companies using these handy tools has increased more than 12-fold—to more than 1,200. Radioisotopes have been in use safely for many years. While some danger exists, the magnitude of it is far different from that of a power reactor. A comparison might be made with electrical insulators. As the bus bar of a generating plant, huge insulators must be used. When a splice is insulated in the wiring of your home, it is simply covered with insulating tape.

In conclusion, let me point to our record. Over an 11-year period two people died of radiation injuries, none were caused by reactor operation; 184 died of other injuries caused by the "normal" type of accidents. It is apparent from this record that hazard evaluation and preplanning can provide safe working conditions in atomic plants as in any other industrial plant.

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... the best and safest method for the "first aider" because he doesn't touch the patient!

QUICK, THOROUGH, PAINLESS, ASEPTIC...

Doctors agree that certain basic conditions are present in all burn cases. The "first aider" is qualified only to deal with the first three: Relieve Pain, Prevent Infection, Treat Shock. Spraying burns does this best. And the MSco assortment of Burn Spray Kits is the largest ever offered. Americaine or Kip Antiseptic Oil in either compact Unit-Type Packets with Pressure Cartridge Spray or Complete Burn Spray Kits; Aerosol Dispensers of Foille, Americaine, and Kip; Foille and Hydrosulphosol Burn Spray Kits; Fire Department Kits. MSco also supplies all standard burn ointments in unit form for first aid kits. See your MSco distributor or write for details.

MSCO *Specialists in first aid*

Medical Supply Company
Rockford, Ill. • In Canada, it's Safety Supply Co.

for the emergency you may encounter

Pocketaire **PORTABLE OXYGEN UNIT**

Now heart attack patients can be aided on the spot with oxygen from this compact, new inhalator. Just 17 inches high and weighing only 17 pounds, the **portable** Pocketaire simplifies all oxygen relief and rescue work . . . permits aid to be given on stretchers or in inaccessible areas.

Rate of flow is regulator-controlled . . . keeps within medically safe limits **automatically.** Two standard medical cylinders provide enough oxygen for up to one hour at high flow rate; up to two hours at moderate rate.

Write for free literature or demonstration.

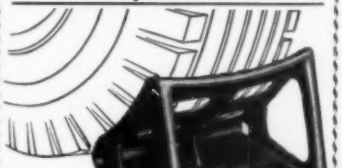
THE CYCLE-FLO COMPANY
983 BRIDGEPORT AVE. • MILFORD, CONN.

Canada: Wilson & Cousins Co. Toronto, Ontario
Export: Ward LaFrance International Elmira, N. Y.

STOP **CASTEEL WHEEL BLOCKS**

ACCIDENTS!

For Heavily Loaded Trucks



Model WB3C

FLEET OWNERS
Note these advantages:
High Strength Alloy Steel
Easily Handled and Stored
Round Corners—Ribbed Supports
Made with Loose Calk or Cast Calk
Your name can be cast on

SEND FOR NEW BULLETIN N568

Calumet Steel Castings Corp.
1636 Summer Street Hammond, Indiana

Let's not clean away dollars and man-hours with costly, inadequate floor care

MECHANIZE your floor-cleaning with a COMBINATION SCRUBBER-VAC!

(Powder Dispenser and Level Cable Wind are accessories)

Wherever *combination-machine-scrubbing* is the practical solution to the floor-cleaning problem, any lesser, slower method is wasteful of money and manpower. A *Combination Scrubber-Vac* applies the cleanser, scrubs, flushes if required, and picks up (damp-dries the floor)—*all in one operation!* Maintenance men like the convenience of working with this single unit . . . the thoroughness with which it cleans . . . and the features that make the machine simple to operate. It's *self-propelled,* and has a *positive* clutch. There are no switches to set for *fast* or *slow* — slight pressure of the hand on clutch lever adjusts speed to desired rate. The powerful vac performs quietly. Cable reel is self-winding. *Model 213P Scrubber-Vac* shown at left, for heavy duty scrubbing of large-area floors, has a 26-inch brush spread. Cleans up to 8,750 sq. ft. per hour (and more in some cases), depending upon condition of the floors, congestion, et cetera.

Finnell makes *Scrubber-Vac Machines* in a full range of sizes—for small, vast, and intermediate operations. From this complete line, you can choose the size that's exactly right for *your* job (no need to *over-buy* or *under-buy*). It's also good to know that you can lease or purchase a *Scrubber-Vac,* and that *a Finnell Floor Specialist and Engineer is nearby* to help train your maintenance operators in the proper use of the machine . . . to recommend cleaning schedules for most effectual care . . . and to make periodic check-ups. For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2209 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

FINNELL SYSTEM, INC.

Originators of Power Scrubbing and Polishing Machines

Everything FINNELL for Floor Care

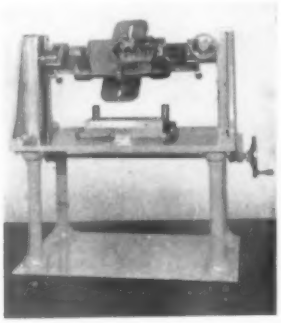
BRANCHES IN ALL PRINCIPAL CITIES

NEW SAFETY EQUIPMENT

Further information on these new products may be obtained by writing direct to the manufacturer or by circling the corresponding item number on the Reader Service Postcard.

Die Handler

Safety, speed, and simplification are features of this modern method of die handling. The handler is precision built, with ball-bearing construction, and is designed for one-man operation. The die handler will lock in any position, and has 180° rotation of punch.



It is especially designed for tool rooms, and inspection, press and try-out departments.

The handler cuts down manual handling of die sets, reduces cost, and increases production and safety.

Hauser Manufacturing Co., 234 Mill Street, Rochester 14, N. Y. (Item 1)

Safety Drum Drainer

The Revere Dispensing Rack,

drains drums quickly, easily and safely.

A crank in front of the rack operates a gear mechanism that raises and lowers the drum. The rack is solidly supported on four steel casters permitting mobility, and one man can put the drum on the rack, roll it to the proper location, and then adjust it to the correct height by cranking. The mobility of the rack conserves space and is said to do away with permanent locks and cradles. Since the rack can be lowered to a floor position, the drum can be tilted into the rack. This permits drum storage on end until ready for use.

Standard Safety Equipment Co., 232 West Ontario Street, Chicago 10. (Item 2)

Aluminum Step Ladder

Aluminum-lightness combined with strength, immunity to rust, rot or mildew and resistance to corrosion make this new heavy-duty safety aluminum step ladder suitable for all kinds of construction, maintenance or repair work.

The ladder is available in sizes from 4 to 14 ft. with heavy-duty rubber pads on the feet to prevent slipping.

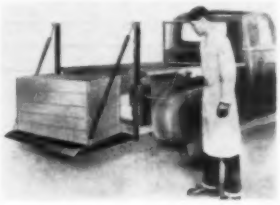
The front and rear rails are extra strong. The front rails are made of 1x3⅞ in. channel 6063 T-6 alloy, and the rear rungs are double-braced ¾ by 1⅝ in. channel 6062 T-6 alloy.

Patent Scaffolding Co., Inc., 38-21—12th Street, Long Island City 1, N. Y. (Item 3)

Elevating Tail Gate

The "Jiffy-Lift" is an all steel, ramp-type elevating tailgate with a capacity of 600 lbs. The driver can load or unload heavy or bulky articles such as bottle gas, oil drums, engines, equipment, etc.

The design features a simple lifting mechanism, with ball bearings throughout for easy operation. The



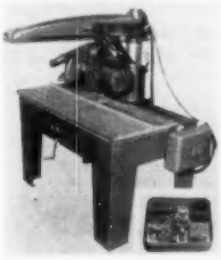
"Jiffy-Lift" is built for hard service, and requires no maintenance other than occasional lubrication. The lift is easily transferred from old to new trucks.

Mid West Body and Mfg., Paris, Ill. (Item 4)

Power Brake for Radial Arm Machines

A dynamic power brake that cuts "drift" time of the cutting tool after the electrical current is shut off has been developed for use on all models of this company's radial arm type woodworking machinery.

The power brake units are supplied as self-contained packages, and



are easy to install. By reducing the motor's "drift-time" much of the potential hazard to the operator is eliminated.

Typical of the reduction in drift-time is the statement that the coasting time for the 16-in. saw blade is reduced from 435 seconds to about 25 seconds.

The power brake incorporates a magnetic or manual motor starting mechanism in addition to the electrical components controlling the braking action itself. Thus, the one unit serves both as a motor starter and power brake, eliminating the necessity of individual provision for these two separate functions.

DeWalt, Inc., Lancaster, Pa. (Item 5)

Water Cooler

Stainless steel coolers are now equipped with mechanical dual controls. These coolers, with the convenient push button or pedal controls, are particularly adapted to industrial plants, office buildings, schools, and stores.

Halsey W. Taylor Co., Warren, Ohio. (Item 6)

Fluorescent Exits

These fluorescent exits are approved by Underwriters' Laboratories and feature four or six inch white letters on green or red ceramic fired glass backgrounds. The panels are evenly illuminated without hot spots.

The unit is finished in "Silverglo" baked aluminum lacquer and made of die-formed steel and rust inhibited after fabrication. The unit consumes nine watts of actual power.

The Albert Sechrist Mfg. Co., Denver, Colo. (Item 7)

Orbital Shape Tuc-Overs

The "Tuc-Over," a safety clip-on, is now available with orbital shape lenses and frames to fit the popular new shape of prescription glasses.

They are made in two sizes to fit all orbital shape prescription glasses frames. They have shatterproof Methacrylate Eye Savers lenses, .080" thick, and a tough, resilient polyethylene frame.

They snap on or off prescription frames quickly and are held firmly in place by plastic clips which never scratch the frame or lenses. A protective visor extends back to the forehead for over-eyes protection against dust, glare and flying particles. Interchangeable Eye Savers lenses can be replaced or changed by the wearer without special tools and are available in light or medium green.

The lenses fit snugly in the resilient plastic (translucent white or green) frame.

Watchemoket Optical Co., Inc., 232 West Exchange Street, Providence 3, R. I. (Item 8)

Petroleum Hand Pump

Series 476 Hand Pump is a newly designed, low-cost, light weight hand pump for dispensing petroleum products.

It is available in two models with either hose and nozzle or container filler with spout.

Flexibility and ease of handling are featured, and an automatic shutoff nozzle is standard for the hose and nozzle model and a non-drip shutoff is incorporated in the spout of the container filler model. Housing of the pumps is rugged, light weight phenolic resin.

The unit pumps on both forward and back strokes, delivering approximately 12 gallons per minute. A vacuum breaker speeds drainage, and prevents loss by siphon.

The hose and nozzle model is equally adaptable to drum or skid-tank installation and the container filler model is designed for filling small hand vessels in industrial plants, or for transferring liquid petroleum to pails.

Safety and efficiency of transfer is increased over the old-fashioned methods of hand pouring, or gravity drip, which often leads to spillage, waste, accident and fire hazards.

Tokheim Corp., 1670 Wabash Ave., Ft. Wayne, Ind. (Item 9)

Truck Back-Up Alarm

No wires, or switches are necessary for this new mechanical back-up safety alarm for trucks. The alarm is a self-contained unit easily attached directly to the rear wheels where it operates by gravity only.

Mounted outside on left and right rear wheels to insure a warning to anyone behind the vehicle, the alarm rings loud and clear only when the vehicle is in reverse.

When the vehicle is moving forward the hammers fall against rubber stops and are held in that position by centrifugal force.

The alarm is a six inch metal bell mounted on a steel plate and is installed on the axle hub of wheeled vehicles. It is sounded by four heavy metal hammers striking the bell once every quarter revolution of the wheel when in reverse motion.

E. D. Bullard Co., 275 Eighth St., San Francisco 3. (Item 10)

Remote Alarm System

A new automatic remote alarm system, offering both audible and visible warning for equipment failure or overload, and for hazardous conditions or intrusion is adaptable to facilities and operations spread over large areas but not under continual observation.

The system works over a 2-wire pair or single wire and ground return up to several miles, or can utilize conventional communication circuits. It produces a blast audible for more than 2,500 ft.

Any condition that will operate a switch or relay will trigger the alarm. Complete alarm systems are available with sensing devices for: electrical and physical load; gas detection; fire or intrusion; position; or other process functions.

Sparton Control Systems Div., The Sparks-Withington Co., Jackson, Mich. (Item 11)

Space Filters

Designed especially for hospitals, including operating rooms, laboratories, and isolation wards, these ultra-aire space filters provide filtration of minute particles of airborne contaminants.

Each filter has a rated retention efficiency of 99.97 per cent on the standard military D.O.P. penetration test, and each conforms to the Atomic Energy Commission & Chemical Corps specifications. Units may be installed directly in air ducts or hoods, or built into walls singly or in banks.

The media in the filters is a recently developed glass fiber web that is effective in filtering out small particles. The strong, light weight web will not burn.

Mine Safety Appliances Co., 201 N. Braddock Avenue, Pittsburgh 8, Pa. (Item 12)

Explosion-Proof Electric Hand Lamp

Underwriters' Laboratories approved for Class 1, Group D atmospheres (containing gasoline, hexane, naphtha, benzine, butane, etc.) this explosion-proof electric hand lantern has a 1,500-foot beam.

The container and head are of drawn brass and finished in red baked enamel and the handle is die cast zinc. Wires from the container to the head are sheathed in flexible brass tubing.

The lantern bulb is held in its socket by a compressed high-tension spring clamped over the glass envelope of the bulb. When the bulb cracks or breaks, the spring crushes the bulb and simultaneously ejects bulb-base from the contact socket, thus eliminating filament afterglow.

The switch is an on-and-off push type, and the battery connectors are pressure type.

U-C Lite Manufacturing Co., 1050 W. Hubbard Street, Chicago 22. (Item 13)

Tank Truck Platform

One of the important features of these platforms is operator safety.

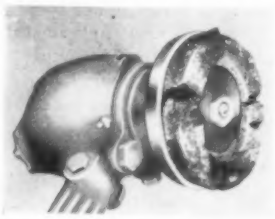
The platform is designed to allow safe ascension and descension for the worker during loading or unloading operations. The platforms are sturdy, long-lasting and inexpensive, and are tailored to individual requirements.

The platform has increased vertical adjustment and an easily manipulated extendable work deck.

The Nichols Engineering Co., 3816 West Grand Ave., Chicago 51. (Item 14)

Surface Grind Safety Flange

The Harris safety flange for portable surface grinders provides personnel protection, increased production, and increased wheel life. The flange is designed to clamp the grinding wheel in place, so that if the wheel breaks, pieces will not be



thrown out, causing harm to personnel or equipment. The use of the grinding wheel is not restricted. The flange also forms a guard for the grinding wheel, preventing breakages which might occur by careless handling or misuse of the equipment.

It can be removed from the grinder by the operator and no equipment modification is required. The flange is made in 4, 5, and 6 in. cup wheels and 6 in. straight side cup wheel sizes.

West Industries, Inc., Department E, 19218 Redwood Road, Cleveland 10, Ohio. (Item 15)

Top Entry Ball Valve

Made of bronze, this top entry ball valve can handle oxygen and hazardous liquids as well as water, oil and gas. It carries 300 lbs. per square inch on water, oil and gas, and 400 lbs. per square inch on LP gas and is available both with sweat ends and screw ends, in ½ in., ¾ in. and 1 in. sizes.

The valve allows change of direction of shut-off, change of seat material, and quick, easy cleaning without removing the valve from the line. These can be done by removing the body cap and reversing the cage assembly or changing the seat material.

The valve stays leak-proof, and is suitable for food processing, oxygen lines, chemicals, breweries, refineries, LP gas lines, etc.

Rockwood Sprinkler Co., 38 Harlow St., Worcester 5, Mass. (Item 16)

Explosion-Proof Motor

This mechanically-sealed motor was especially developed for mining, dry milling, cement processing, aviation, chemical industries, and other similar applications where it is necessary to operate electric motors in explosive or corrosive atmospheres. The motor is moisture, dust and explosion proof.

The entire motor is enclosed in a steel case filled with medicinally-pure mineral oil of high dielectric strength so there is no opportunity for sparking or corrosive attack on internal motor parts.

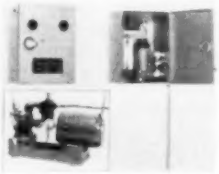
The oil-filled motor can be supplied to meet special torque requirements of particular applications as well as special horsepower and speed requirements.

Special shaft extensions can be provided when necessary for adaption to equipment.

Byron Jackson Pumps, Inc., Box 2017A, Terminal Annex, Los Angeles 54. (Item 17)

Combustible Gas Alarm Drawing Accessory

Continuous guarding against explosions in areas of extreme temperatures or inaccessibility can now be maintained with a Sample Drawing Accessory for the standard models of this manufacturer's combustible gas alarm.



The accessory, (pictured with front panel open) mounted in a non-hazardous location, draws a continuous sample through a copper line from a remote danger area. Typical applications would include an engine-testing room where extreme temperatures are normal, wherever excessive dirt, moisture, etc. are present, wherever gas is present under slight pressure, or an inaccessible area such as an underground tunnel.

A sensitive, flashback-protected filament in the Sample Drawing Accessory reacts to combustible gas in the sample flow. At 0.2 of the lower explosive limit, an electrical signal actuates an alarm circuit in the control box, which is usually mounted alongside for convenient servicing.

Johnson-Williams, Inc., 2623 Park Boulevard, Palo Alto, Calif. (Item 18)

Fire Hose

A new 1½ inch fire hose weighing only 34½ pounds in a coupled 100-foot length is called Super Fyr-Flex XL. The double jacket dacron

hose is quicker drying because it absorbs 25 per cent less water. In addition to the conventional 50-ft.

lengths, the hose is available to municipal and industrial fire departments in 100-ft sizes.

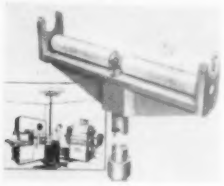
The hoses can be swung into action quickly. The danger of couplings pulling off or becoming snagged at the scene of a fire is cut in half by using the 100-ft. length. The hose has a smoother waterway and the weave's close picks per inch reduce friction loss to a minimum.

The light weight of the hose is due to the use of extra-long staple cotton, chemically treated to retain flexibility and provide extra strength.

Fyr-Fyter Co., 221 Crane St., Dayton, Ohio. (Item 19)

Fluorescent Tube Changer

Increased safety results by reducing the risk of climbing ladders and changing "hard-to-get-at" fluorescent tubes. The changer requires two steps to change a tube; the user



pulls a slide to remove a burned-out tube, and again pulls a slide to insert a new one. The changer has only three moving parts. It is light weight and of foolproof construction.

Pattern Products Company, P.O. Box 135, Union, N. J. (Item 20)

Auxiliary Scaffold Platform

This new scaffold auxiliary platform assembly was designed to meet the need of a larger area coverage for those who work off-the-floor. The assembly is available in lengths which provide platforms up to 14 ft., 6 in., including the two supporting scaffolds. The span between the two supporting scaffold units is a rigid

truss construction, similar to the steel joist design used in building construction. This type design gives maximum strength and rigidity with a minimum weight factor.

Plasterers, painters, acoustical erectors and others who require a larger floor area coverage with their scaffolding equipment, will find this equipment useful. The scaffold incorporates the safety locking features found in all the manufacturer's scaffolds and is fully adjustable for height every three inches even when units are stacked for height. A metal-bound plywood platform is included in the assembly.

Baker-Roos, Inc., 602 West McCarty Street, Indianapolis 6. (Item 21)

Industrial Gloves

A line of industrial gloves featuring a new leather with high wearing qualities has been announced. Ac-

cording to the manufacturer, tests indicate that this leather gives up to three times as much wear as other work-glove leather.

As a result of a special tanning process, the gloves are very flexible. This process also retains the resistance to abrasion found in the natural shell cordovan horsehide from which the glove leather is split. The line of gloves includes three basic styles to meet the needs of most industrial applications. They are available in safety cuff, gauntlet and knit wrist patterns. All styles have canvas backs.

Wearhide Glove Co., Rockford, Mich. (Item 22)

Tubular Gage Glass Guard

New lucite tubular guards for protecting tubular gage glasses of liquid level gages are designed to take the place of metal guard rods. They offer greater safety and protection as well as better visibility.

Easily installed, the strong plastic tube completely surrounds the gage glass and protects it from breakage from the outside. A safety feature of the guard is that it contains and prevents liquid from spraying on anyone if the gage glass should rupture and break. There are no blind spots as it provides clear, 360° visibility of liquid level. It is available in a standardized design, and lengths are available as required.

Jerguson Gage & Valve Co., 80 Fellsway, Somerville 45, Mass. (Item 23)

Elevating Tail Gate

Pick-up trucks may now be equipped with an elevating tail gate known as the "Watson Weightlifter."

It is easily loaded from either side (as well as back) for parallel curb

parking. It has a lifting capacity of 650 lbs., and is hand winch-operated. A completely automatic load brake is in operation at all times so that the load can be raised or lowered at will—but without the chance of accidental droppage.

The tail gate is sturdy, reinforced steel and the level can be re-adjusted.

H. S. Watson Co., 1316—67th St., Emeryville 8, Calif. (Item 24)

Stainless Steel Extinguisher

Designed for water or anti-freeze, this stainless steel pressurized fire extinguisher carries the Underwriters' Laboratory approval.

The sight gage shows the exact air pressure at all times and insures accurate refill pressure.

The extinguisher releases pressurized water streams at one squeeze of the handle. The charge is plain water and air pressure and no chemicals or CO^2 cartridge are required.

The General Detroit Corp., 110 Mt. Elliott, Detroit 32, Mich. (Item 25)

Oxygen and Resuscitation Unit

Safe, compact, and lightweight, this portable oxygen and resuscitation unit can be used in medical and dental offices, ambulances, industrial plants, etc.

Positive pressure resuscitation can be administered by squeezing the bag, and a relief port protects the patient from excessive pressures. A

NEW PRODUCTS

(cont.)

safety valve limits the pressure to 20 mm Hg. Oxygen flow is controlled with a needle valve.

The unit is packed in a green leatherette case with detailed instructions on the cover. The unit is 5½x10x23½ in. and weighs 21 lbs. including a standard "D" size cylinder.

Ohio Chemical and Surgical Equipment Co., Divn. of Air Reduction Company, Inc., Madison 10, Wis. (Item 26)

Self-Leveling Ladder Attachment

The "Safety-Level" adjusts itself to any terrain hydraulically. When the valve under the bottom rung is open, the ladder levels itself. When the valve is closed, the ladder is locked in position.

The ladder attachment comes equipped with safety grip feet which can be used on the rubber pads (as illustrated) for hard surfaces, or can be set with the safety spike protruding for use on loose ground.

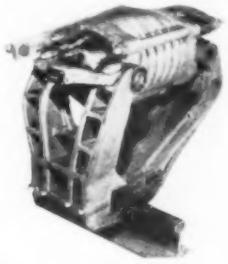
The "Safety Level" is constructed of aluminum and brass which eliminates corrosion. The unit can be attached to any ladder—wood or metal.

Eden Enterprises, Inc., 2000 E. Eden Place, Milwaukee 7. (Item 27)

Automatic Rail Clamp

A self-adjusting automatic rail clamp provides a number of safety and operating features. The clamp allows a clamping force to be applied directly by a spring which is released during operation by a hydraulic cylinder when the structure is in motion.

In operation, a compression-type spring works directly on the clamp jaws to apply pressure through serrated shoes to the rail head. The clamp is released by purging oil to a hydraulic cylinder that applies



force to compress the spring. The pump motor is wired through the propelling master and operates in conjunction with it. Thus, placing the propelling master on the first point in either direction actuates the clamp pump motor and hydraulically releases the clamp in from 3 to 5 seconds. At this time the propelling circuit is established through relays by the rail clamp limit switch. The clamp is held open as long as the propelling master is in the OFF position.

The clamp is self-adjusting and is free to follow horizontal or vertical rail variations. Green and red lamps may also be operated through relays by the rail clamp limit switch to show visually if the clamp is released or applied.

The clamp is made to fail safe. Any hydraulic or electrical system failure cuts the propelling circuit and sets the clamp. The structure then cannot be moved until the failure is corrected and the clamp is fully released.

Mead-Morrison Division of McKiernan-Terry Corp., Harrison, N. J. (Item 28)

Plastic Ear Plugs

"Saf-Ears" are custom-fitted, noise-repellent plastic ear plugs for industrial and military use.

The ear plugs are primarily designed to reduce noise level to a safe level for personnel.

Two types of materials are used: one for reduction of certain low frequencies; and another for low and middle frequencies.

The ear plugs permit normal operations by personnel through reduction of dangerous sound intensities.

Hartford Ear & Acoustic Research Laboratories, 190 Trumbull Street, Hartford, Conn. (Item 29)

CBM Extinguisher

CBM (Chlorobromomethane) is the chemical used in this fire extinguisher. It will snuff out among others, grease, oil and gasoline fires. It is recommended for extra fire protection in shops, stores, store rooms, shipping rooms, on trucks, etc. The extinguishers are charged with 120 lbs. pressure of CO_2 to shoot a mist of CBM up to 18 feet. The unit comes equipped with a hook for hanging.

The Tetco Co., 3350 San Fernando Rd., Los Angeles. (Item 30)

NEWS ITEMS

Mine Safety Appliances Co. has opened a new office and warehouse at 2500-12th Avenue, North, Birmingham 4, Ala.

A complete line of protective appliances and replacement parts and supplies will be stocked at the warehouse.

* * *

John W. Hill, industrial designer and inventor and assistant to the president of the Globe Co. died in June. Mr. Hill was the designer and inventor of Safety Grip-Strut Grating, and many other products for industry and the meat packing field.

* * *

John R. Jones has been appointed Sales Manager of the Pioneer Rubber Co. Mr. Jones was formerly field

sales manager of the Sundries Division of the B. F. Goodrich Co.

* * *

The General Scientific Equipment Co., Philadelphia, Pennsylvania, manufacturers and distributors of industrial safety equipment, has been reorganized and formed into a corporation.

Maurice Kline has been elected president. Other officers are: Joseph Q. Kline, vice-president, Harold W. Kline, secretary and treasurer.

Serving as directors, in addition to the above named corporate officers, are Robert L. Leonard and Stephen J. Korn.

There is no change in the company name or present address.

* * *

NEWS ITEMS
(cont.)

The Fyr-Fyter Company has announced the creation of two new divisions and the appointment of two top organization men to head them.

A. C. Trautwein was elected by the board of directors to head the Fyr-Fyter Division and the Accessories Division as vice-president and general manager. He will be assisted in the latter by John Lohrey, who was named assistant vice-president and manager.

The Fyr-Fyter Division will cover sales of portable fire extinguishers, wheeled engines and other fixed fire control equipment. The Accessories Division will furnish a full line of nozzles, couplings, hose, and other related fire department equipment. St. Louis. Mr. Trautwein has been with Fyr-Fyter since 1928. Mr. Lohrey has been with the company for 10 years.

* * *

The Macwhyte Co., at a recent meeting of the board of directors, elected Francis D. Holden vice-president in charge of sales.

Formerly sales manager, Mr. Holden has had more than 20 years experience in Macwhyte Co. general sales and export positions. Other appointments included that of Goodwin Johnston, formerly treasurer and assistant secretary to the new office of secretary-treasurer.

Adair Baker has been appointed vice-president of manufacturing and research for Vestal Laboratories in St. Louis. Mr. Baker has been with Vestal since 1948. He is currently serving on the technical committees

of the American Society for Testing Materials and the Chemical Specialties Manufacturers' Association.

* * *

The S. G. Taylor Chain Co., Hammond, Ind., maintains a free sling chain inspection service to all users in the midwest. The slings must be delivered freight prepaid to the Hammond plant. The inspection program is intended to assist the industrial safety director in his sling chain and inspection repair program.

* * *

E. J. Dwyer has been elected a vice president of the Electric Storage Battery Co. Mr. Dwyer joined the company in 1948 and in 1955 was elected to the board of directors.

He is a member of the American Bar Association and has worked for General Electric Co.

* * *

Columbus-McKinnon Chain Corp. has appointed Leslie R. Schroeder to represent both CM Industrial Chain and CM Hoist products. His headquarters will be in St. Louis.

Fine Organics, Inc has announced the appointment of the Virginia-Carolina Safety Equipment Co. as exclusive sales representatives for their safety solvents and aviation chemical products. The new firm with headquarters in Waverly, Va., is headed by O. P. Baird.

* * *

Forrest L. Fraser has been named Vice President for Marketing of American Optical Co.

Mr. Fraser will be responsible for directing and coordinating sales, sales promotion, merchandising and advertising efforts. He has served in the past with the Pabst Brewing Co., the Kroger Co., and General Motors, Sears, Roebuck and Co., Allied Purchasing Corp. and Associated Merchandising Corp.

* * *

Walter Pahner has been appointed general supervisor of safety at the National Tube Division's Lorain Works. He began his employment at the Lorain Works in August 1950 and in July 1951 was appointed supervisor, safety.

* * *

Van Horn Ely, Jr. has been named president of Oxy-Catalyst, Inc. Mr. Ely, a director of Oxy-Catalyst for the past year and a half, was also named company treasurer. Mr. Ely

is currently on the board of directors of Houdry Process Corp., Alan Wood Steel Co., the Philadelphia Suburban Co., and other large corporations.

TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

1. Wire Rope Slings and Fittings: Catalog No. 55-S of 79 pages gives wire rope recommendations for industrial services. The catalog covers different types of wire ropes used in construction by bulldozers, derricks, shovels and wenches; in cranes by truck or crowler, railroad, overhead travelling, shop and wrecker units; hoist lines, ladder lines, etc. Points covered are rope diameters, construction, etc. Charts covering weights and breaking strengths are provided as are photographs and drawings of typical wire rope riggins and accessories. Wire Rope Corp. of America, St. Joseph, Mo.

2. "Vermiculite Fire Resistance Ratings for Plaster, Acoustical Plastic, and Concrete": Compact and comprehensive, this booklet contains 38 drawings that show fireproofing details for both concrete and steel roof and floor assemblies, columns, beams, girders and trusses, panel or spandrel walls, and solid plaster partitions. The constructions are described as tested. Included are new assemblies that have proved more economical than earlier types, such as direct to steel fireproofing of formed steel floors and roof decks. Vermiculite Institute, 208 S. La Salle St., Chicago 4, Ill.

3. Dock Bumpers: Literature contains more than a dozen drawings including five which show various dock bumper models available. In addition, drawings show various methods for mounting bumpers on new concrete docks, on existing concrete docks, on existing wooden bumpers, and also illustrates a typical installation for a vertical bumper. Bumpers, Inc., 2534 Detroit Ave., Cleveland 13, Ohio.

4. Fire Alert System: Bulletin describes a two-way fire alert system for preventing panic and confusion primarily in hotels, office buildings, etc. American Communications Corp., 306 Broadway, New York 7, N. Y.

5. Reverse Shank Pneumatic Tools: Four-page product bulletin illustrates the safety features of company's line of Reverse Shank Pneumatic Tools. According to manufacturer, these tools, with their reverse hex and round order, provide larger shank dimensions, a contact between bushing and tool that is surrounded by the bushing itself, and virtually eliminates the possibility of shank breakage. Tool & Mfg. Co., Inc., P. O. Box 10344-I, Pittsburgh 34, Pa.

6. Portable Drum Rotator: Specification bulletin number 155 describes in detail all pertinent facts and the many exclusive features of the Morse Portable Rotator, including a special tipping lever that makes this rotator adaptable for use with fiber containers. Safely and easily handled by one man, this drum rotator is easily manipulated in tight quarters and can be moved from job to job with no trouble. Morse Mfg. Co., Inc., 727 W. Manlius St., East Syracuse, N. Y.

7. Brunt Faultfinder: 12-page booklet describes Brunt Faultfinders and their uses, in three new models. This instrument is used to detect and locate accidental grounds or normally ungrounded electrical power circuits of up to 600 volts, AC or DC, while these circuits are energized. It is easily carried from place to place and operated by one man. Its audible signal permits its use in dark, almost inaccessible places, on circuits buried in the earth, or in concrete, or on overhead circuits, without the necessity of placing the exploring coil on the conduits or cables. Parr Manufacturing Corp., 48 Hale St., Cranford, N. J.

8. "Are Dermatitis and Skin Infections Stealing Your Profits?" Bulletin discusses dermatitis and skin infections, and tells how it costs industry over $100,000,000 yearly. Explains how these costs can be easily and quickly cut. Also, lists company's line of Hexachlorothene Antiseptic Hand Soaps. Armour Industrial Soap Dept., Armour and Co., 1355 W. 31st St., Chicago 9, Ill.

9. Aluminum Ladders: Extension ladders, single ladders, stepladders and stools for heavy and light duty use are fully described with photos and complete specifications in this Bulletin L-87. These rust, rot, mildew and corrosion-resistant ladders are developed through 75 years of experience. They are designed for construction, or plant maintenance use. Patent Scaffolding Co., Inc., 38-21—12th St., Long Island City 1, N. Y.

10. Industrial Sweeper: Catalog IS-101 describes and illustrates the unique design and exclusive features of company's industrial sweeper. The sweeper can be used in industrial plants, warehouses, airports, parking lots—anyplace where areas require fast, low cost sweeping. According to the manufacturer the Hydra-Sweep can cover 150,000 square feet per hour—saving from 60 to 75 man-hours—every working hour. Industrial Sweeper Co., 2508-18 S. Main St., South Bend 23, Ind.

11. Atmosphere Analyzer: Bulletin describes instrument for detecting and recording concentrations of pollutants in the atmosphere. Instrument gives a continuous record of ozone, nitrogen dioxide, nitric oxide,

and sulfur dioxide present in the air. Advantages and operating principles are detailed to industrial users, Health Departments and Air Pollution Control Boards. Harold Kruger Instruments, P. O. Box 164, San Gabriel, Calif.

12. "Micro Tips Digest": 16-page booklet, containing 43 illustrated descriptions of uses for snap-action switches. This booklet is a compilation of the best ideas for applications of this type of switch, now widely used throughout industry. Complete with photographs and drawings, the 43 switch application stories describe a wide variety of industrial and commercial users for snap-action switches to provide improved safety, to lowered costs, to increased production and to make electrically operated equipment more automatic. Micro Switch Division of Minneapolis-Honeywell Regulator Co., Freeport, Ill.

13. Fireye Control for Commercial Burners: Bulletin CF-21 describes Fireye primary control System FJ-2 for light oil or gas-fired automatic commercial burners. Bulletin contains full operating data on this complete flame safeguard and programming system. The bulletin describes how System FJ-2 Firetron scanner virtually monitors both pilot and main flames on pilot-ignited burners. Electronic Corp. of America, Dept. CN, 2718 Beacon St., Boston, Mass.

14. Floor Gratings: 12-page Specification and Installation Manual illustrating the latest methods for prolonging the life of industrial floors with company's line of heavy duty steel floor armors. The manual includes data tables, filler weights, specifications; illustrated installation procedures and various specialized uses of Hexteel and Floorsteel in a number of industries such as the oil and chemical industry, etc. Klemp Metal Grating Corp., 6615 S. Melvina Ave., Chicago 38, Ill.

15. Cross Arm and Pole Slings: Bulletin describes a specifically designed cross arm to assist the lineman in their work, especially with wire tools and block tables. Complete specifications included. R. H. Buhrke Co., 1400 W. Congress Parkway, Chicago 7, Ill.

16. Fork Truck: 4-page folder, illustrates and describes a Model F-45T3 3,000 lb. capacity electric powered fork truck. The truck features roller mounted inner-uprights and elevator carriage, operatives protective cowl, automotive type controls, packaged unit assemblies, low hydraulic pressure, contactor controls, center sill frame and worm drive. Complete specifications with accompanying specification drawings included. Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland, Ohio.

17. Head and Eye Protective Equipment: A new illustrated folder describes 30 of the most popular items and company's complete line of head and eye protection equipment. The folder includes goggles for welders and chippers, plastic eye savers, spectacle type goggles, eye shields, welder's helmets, masks, hats and lenses. Dockson Corp., 3839 Wabash Ave., Detroit 8, Mich.

18. Electro-Hydraulic Maintenance Towers: Bulletin describes electro-hydraulic one-man maintenance towers. The bulletin gives complete specifications on the three models in which the Moto-Lift is produced — the manually operated Model ML-2, the 12-volt battery operated Model ML-3-DC, and the 110-volt plug-in Model ML-4-AC. The bulletin suggests profitable uses for Model Moto-Lift Towers in Equipment and Building Maintenance, both indoors and outside. The Model-Lift rolls anywhere on casters with safety brakes, raises the work platform from seven feet to 17 in 25 seconds and telescopes to pass through low, narrow doors. Safway Steel Products, Inc., 6234 W. State St., Milwaukee 13, Wis.

19. Dust Collector: 12-page bulletin explains the operation and construction of the Cyclo-trell multiple tube dust collector with the aid of numerous drawings, cut-away view, and collection efficiency and capacity nomigraphs. Tables give design data for the six available sizes of the dust collector, ranging from 3 to 20 tubes. The Cyclo-trell operates on centrifugal collection principles and incorporates new design features to boost collection efficiency and gas handling capacity. Research-Cottrell, Inc., Bound Brook, N. J.

20. Du Pont Quilon: 13-page booklet describes side leather processed with du Pont Quilon chrome complex. Pictures illustrate how shoes made of this leather keep their good appearance longer. According to the report Quilon promises to improve side leather at a very reasonable cost by giving it: better grain structure, shape retention and water resistance, better resistance to chemicals and perspiration, better finish, finish adhesion and appearance when subjected to wear. Grasselli Chemicals Dept., E. I. du Pont de Nemours & Co., Wilmington 98, Del.

21. Welding Helmets: Bulletin describes and illustrates M-S-A "S" line of welding helmets and equipment. Several types are available, including a combination welding helmet and skull gard, to protect the welder's head. Also features is the M-S-A Nitrometer Mask, for face protection from splashing chemicals. It provides a large aperture visor of clear plastic, for unrestricted vision in all directions. Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh 8, Pa.

22. Emergency Lighting: Catalog illustrates and describes Dynaseal lifetime emergency and auxiliary lighting equipment. The catalog features the new Dynaseal hermetically sealed nickel cadmium batteries. This new type of battery requires no maintenance, no service, cannot leak nor corrode, and has unlimited shelf life. The lighting units are unconditionally guaranteed for 10 years, and are approved by the Department of Public Safety in Massachusetts, and is listed by Underwriters Laboratories. Dynaseal Lighting Corp., 5 Hadley St., Cambridge 40, Mass.

23. Swivel Fittings: 40-page booklet describes Miller Ball Bearing Swivel Fittings, used as connectors for cables, chains, and tension rods. Complete specification table is included. General Machine & Welding Works, Inc., 110 E. 2nd St., Pomona, Calif.

24. Hand Trucks: The design and development of special application hand trucks is discussed in a 12-page booklet available from the manufacturer. Included are the stories behind the inception, design and applications of several types of hand trucks which have been designed to fit special needs. Drawings of the various style trucks are included. Rol-Away Truck Mfg. Co., Inc., 6143 S. E. Foster Road, Portland 6, Ore.

25. Centrifugal Pumps: Bulletin describes the complete line of class CRV cradle-mounted centrifugal pumps. The pumps described have capacities from 5 to 2800 gallons per minute and pressure of 10 to 525 feet total head. A concise tabulation of pump types with their rating en-

ables pump user to select the correct unit for his needs. A cross-section view points-up the design features common to this line of pumps. In addition, performance tables and dimensions for the entire line are shown. Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

26. "Power Shop": A colorful new 20-page booklet discussing the operations and uses of the company's multi-purpose "Power Shop" machines is available. Features of the booklet include detail descriptions of the various mechanical movements of the radial arm type machines; advantages to the user inherent in tools of this design; more than 100 actual operation photographs showing the applications of the basic machine and its various accessories to the woodworking use of the craftsmen; built-in safety features and provisions for accurate alignment and adjustment; and a detailed listing of available tools and attachments, many of which have been recently added to the line and are presented for the first time. De Walt, Inc., Lancaster, Pa.

27. Carbon Steel Tubing: Engineers and others involved in the design and operation of heat transfer equipment using tubing at elevator pressures will be interested in the data contained in this 4-page technical folder. The bulletin furnishes condensed data on the mechanical and physical properties of seamless and welded carbon steel pressure tubing and supplies helpful information on the various fabricating operations normally performed on such tubings. Babcock & Wilcox Co., Beaver Falls, Pa.

28. Electrical Specialties: Catalog No. 49-A is devoted to full descriptions and graphic illustrations of company's line of electrical specialties—Levolier switches and sockets, portable and stationery lampguards, lamp changers, soldering paste, coloring fluid and other electric accessories. McGill Mfg. Co., Inc., Valparaiso, Ind.

29. Hot Coffee Carriers: Application of "Aervoid" stainless steel vacuum-insulated coffee carriers to speed mass coffee servicing in industrial plants, hospitals, schools, etc., is described and illustrated in this brochure. Vacuum Can Co., 19 S. Hoyne Ave., Chicago 12, Ill.

30. Emergency Oxygen Inhalator: Bulletin describes a light-weight, simple emergency oxygen inhalator for use when you respond in service to persons suffering from respiratory difficulties — heart attack, asthma, gas or smoke asphyxiation, shock, etc. The inhalator is only 21 lbs. in weight, is rugged in construction and attractive in appearance. The unit is contained in a reinforced case with riveted hardware. A very simple "finger-tip" leverage actuates the main valve to start and stop the flow of oxygen. The inhalator is ideal for installation in industry, ambulances, civil defense vehicles, police cars, etc. Emergency Oxygen Inhalators, Inc., 654 Madison Ave., New York 21, N. Y.

31. EyeGard Safety Equipment: A file folder describes and illustrates company's line of lenses and plates, Imperial Goggles, Champion Goggles, Challenger Goggles, Body Gard Helmets, Face Shields, respirators and masks. Complete specifications and prices included. American Industrial Safety Equipment Co., 3501 Lakeside Ave., Cleveland 14, Ohio.

32. First Aid Catalog: A new, 6-page First Aid Catalog contains a listing of over 100 unit packs, photographs of kits, catalog numbers and complete descriptions of kits and units, Pacific Kit for use in plants, Aluminum Cylindrical Kits for pipeline, lumber and drilling industries, Snake Bite Kits, Small Pocket Packs and a number of special kits such as ICC, Associated General Contractors, Ammonia First Aid Kits and Burn Spray First Aid Kits. With each catalog there is included an "Instant Guide to First Aid" card which contains the latest information on first aid treatments. E. D. Bullard Co., 275 Eighth St., San Francisco 3, Calif.

33. Safety Shoes: 29 styles of safety shoes and boots are presented in full color on a 17″ x 35″ wall poster available. The applications best suited for the different sizes and widths available are also listed. The shoes are all ASA approved steel toe safety shoes, stitched with Du Pont Dacron, with a wide corrugated steel arch. Record Industrial Co., 3301 Arch St., Philadelphia 4, Pa.

34. Wire Rope Endings: A colorful 4-page folder, DH-531 describes company's line of Dualoc wire rope endings through typical application photographs. According to the manufacturer, Dualoc is the modern wire rope ending with a thimble or loop. It is double-locked for strength and security; safer to use because the endings will not pull out; safer to handle because the wire ends are permanently anchored under steel collars. Wire Rope Sling Dept., American Chain & Cable Co., Inc., Wilkes Barre, Pa.

35. Safety Floorings: Folder describes safety flooring materials and treads. Ferrox a non-skid plastic abrasive composition which resists oil, chemicals, and outdoor weather is featured. Fera-Mat covers large floor areas in a hurry. It feels like adhesive tape, and installs quickly and stays safe! Especially applicable for clean, smooth floors where speedy insulation is required. Feralun made of cast iron matrix, is used for stairs, etc. American Abrasive Metals Co., 460 Coit St., Irvington, N. J.

36. Safety Messages: More effective safety promotion is the result you can expect if you utilize regularly changed safety messages to your employees. Catalog describes and illustrates firms that are using these signs to advantage. Wagner Sign Service, Inc., 218 S. Hoyne Ave., Chicago 12, Ill.

37. Ear Protectors: Bulletin describes ear protectors called "Earstopper" that cuts down noise. The Earstopper is soft, comfortable, resilient, and adjusts itself to all shapes, turns and movements of the ear canal. Surgical Mechanical Research, Inc., 1905 Beverly Blvd., Los Angeles 57, Calif.

38. Safety Signs: Catalog has hundreds of different standard stock-worded signs shown under various industrial hazard headings, to warn, educate and impress workers of the importance of thinking and acting safety. Sargent-Sowell, P. O. Box 1176, Grand Prairie, Tex.

39. Washroom Maintenace: A manual on daily maintenance of washrooms, containing step-by-step procedures accompanied by photographs and an outline of all jobs needed to be done daily is available. The maintenance schedule for weekly washroom care is also included. Huntington Laboratories, Inc., Huntington, Ind.

40. Protective Apparel: Protective clothing made of aluminized tropic asbestos is described in this folder. Included are illustrations and descriptions of leggings, gloves, sleeves, helmets, aprons, coats and suits. Wheeler Protective Apparel, Inc., 226 W. Huron St., Chicago 10, Ill.

41. Industrial Signals: Signals to warn workers in case of threatened disaster are described in this bulletin. A complete description of Federal's warning system, entirely different from other signalling systems, is included. Federal Sign and Signal Corp., 8725 S. State St., Chicago 19, Ill.

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Here's how it works—

Printed below are two identical Reader Service postcards—the bottom one for your use; the top one for later readers of this issue. The numbers listed on each card are keyed to product advertised and the new safety equipment and trade publications described on pages 167 through 175. Just circle the items you want to know more about, and we will ask the manufacturer to send you full information without obligation. Both cards are perforated for easy removal, and no postage is required.

New Safety Equipment

Products featured in this section have been carefully reviewed by Council engineers so as to bring you only what's new and reliable in the safety field. Only new safety and health products, or newsworthy improvements in existing equipment are eligible for listing.

Trade Publications

Here's a wealth of helpful trade literature — catalogs, spec sheets, booklets, brochures — that will help you compare before you buy. Whether you are in the market now, or think you may be at a later date, you'll want these valuable references in your safety equipment data file.

Products Advertised

As you read through this issue of the NEWS, you will find advertisements describing equipment that may help you solve some of your accident problems. Instead of making a "mental note," make sure you get full information by circling the corresponding page number on the Reader Service postcard. The letters L, R, T and B locate the ads on the page—left, right, top and bottom. IFC—inside front cover; IBC—inside back cover; BC—back cover.

IMPORTANT—Be sure to fill in your name, organization and address in the space provided on this side of the postcard.

Please show company name in full — do not abbreviate.

Please send me more information on the item circled below: **SEPTEMBER, 1956**
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. . . your guide to reliable suppliers of worthwhile safety equipment

The advertising policy of the NEWS requires that all equipment and products meet established codes and standards, have the approval of recognized testing agencies, or have proven their value through actual use in industry. Council engineers and technicians screen every advertisement to make sure that product description is accurate, and performance claims verified by reliable sources. It should not be construed, however, that products advertised are approved or endorsed by the National Safety Council.

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Before you mail your Reader Service postcard . . .

TAKE ANOTHER LOOK AT

- **the ADVERTISING pages**
- **the NEW SAFETY EQUIPMENT section**
- **the TRADE PUBLICATION section**

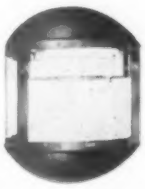
Make sure all the items you want to know more about are circled . . . check to make sure your name, organization, and address are printed on the reverse side of the postcard . . . THEN mail it today.

CESCO RIGHT...before your Eyes!

Snap-fast Face Shield
with deflector crown

Open top
Snap-fast Face Shield

Helmet-type Face Shield



Full-visibility
Helmet-type Face Shield

Spark Shield

NEW!

CESCO
All-Purpose Face Shield
for general shop work

Here is a practical answer to the demand for a low-priced, light, effective face shield that will meet the demands of a wide variety of shop requirements.

The CESCO **770 Face Shield** comes in three window lengths of 4", 6" and 8" (top to bottom). The windows mount inside an aluminum channel in a tight assembly and are impervious to the entrance of dirt or liquid.

The head band of vinyl plastic is adjusted by a sliding strap. There is no metal or mechanical adjustment to snag the hair. The shield conforms easily to the head at all points. Windows of cellulose-acetate may be in green or clear.

Contact your nearest CESCO distributor today or write for complete information and prices.

Write for complete Catalog

CHICAGO EYE SHIELD COMPANY • 2306 Warren Boulevard, Chicago 12, Illinois

OFFICES IN: Atlanta, Baton Rouge, Birmingham, Boston, Buffalo, Cincinnati, Cleveland, Columbus, Dallas, Denver, Detroit, Houston, Kansas City, Knoxville, Little Rock, Los Angeles, Louisville, Mexico City, D.F., Milwaukee, Montreal, Orange, Peoria, Philadelphia, Pittsburgh, Salt Lake City, San Mateo, Spokane, St. Louis, St. Paul, Toledo, Tulsa

CESCO CESCO **FOR SAFETY**

All-Plastic Goggles

AO† LIGHTWEIGHT, SPECTACLE GOGGLES PROVIDE COMPLETE INTERCHANGE OF LENSES AND TEMPLES!

Illustrated are Nos. 786 and 787 — two of the latest and lightest AO All-Plastic Lens Goggles, with noncorrosive endpieces and metal skull temples. In the field of lightweight eyecare they show the same benefits of applied engineering as AO's goggles for heavier exposures.

Lenses, endpieces, and temples can be easily replaced or assembled. One-piece lenses of either clear or green acetate have high impact resistance. Replacement is simple — just slide off the endpieces and re-assemble. No. 786 is ideal for use over regular spectacles for temporary or "on and off" wear. Model 787 is identical except that it has side shields for added protection against laterally flying particles. Both of these goggles are available with comfort cable temples upon request.

Recommended Uses

(1) For light grinding, light machining, spot welding, woodworking, yard work where dust hazards exist, and for protecting Safety Glasses or regular glasses.

(2) For plant visitors and others who may be exposed to eye hazards for short periods.

Keep an adequate supply of these goggles (and extra lenses) on hand always for good fitting. Check with your nearest AO Safety Products Representative.

American Optical
SAFETY PRODUCTS DIVISION

†T.M. Reg. by American Optical Company